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PATHOLOGIC CHANGES IN LUNG TISSUE

AS THE RESULT OF FOREIGN BODIES OF LONG SOJOURN *

W. F. MANGES, M.D.

PHILADELPHIA

For the purpose of this paper, a foreign body is one of long sojourn after it has been present in the air passages for two months or more and up to as many as thirty-five years, except that in one or two instances the sojourn has been less than two months but the pathologic changes are unusual. Serious pathologic changes do occur at times in cases of much shorter duration, but these are more or less constantly the acute type, such as infection, emphysema or atelectasis, with which physicians are quite familiar.

We find in cases of long sojourn a most remarkable variation as to the extent of the lesion and also as to its stage of development at any given period of time, but practically all of the chronic changes are the result of infection and defective drainage. In 1917, Jackson [1] described pathologic changes as seen through the bronchoscope and esophagoscope. As a result of this and his many other contributions, we know that inflammation, infection and its products, granulations, strictures, ulcers and cavities are present. He tells us that the foreign body is usually at the site of stricture, but may follow the line of destruction into lower levels; that the pathologic change is mostly in the bronchial distribution distal to the stricture, and that there is, as a rule, absence of change in the other lung. We cannot, by means of the roentgen rays alone, demonstrate the presence of stricture or granulation tissue or differentiate between pus and other forms of exudate, and we cannot actually demonstrate the cavities at times that are found with the bronchoscope—probably because they are either completely filled with exudate or completely collapsed—but we can demonstrate roentgenographically the exact location, size, shape and position of the opaque foreign body and the extent of involvement distal to it. From the study of many proved cases, both before and after removal of the foreign body and treatment of the remaining lesion, we gradually gain more confidence in our interpretation of the roentgenographic evidence present in any given stage of the disease and, by comparative study on subsequent occasions and especially by means of anteroposterior and lateral roentgenograms, after bismuth subcarbonate has been insufflated or iodized oil has been injected through the bronchoscope, we feel that our help is of material value and that we can use it to great advantage in an increasing number of cases of nonopaque foreign bodies giving the same roentgenographic signs. I hope that the present report will stimulate others to see evidences of aspiration infection and possibly retained nonopaque foreign bodies in the many unexplained cases of basal, usually one-sided, chronic infectious lesion in the lung.

No doubt the best way to present the matter is to illustrate the various points. It is remarkable how often the foreign body history is ignored by both patient and physician. It is remarkable how often both parents and physicians assume that a foreign body has been "swallowed," rather than "aspirated" into the lung. We cannot go extensively into the history of the cases, but occasionally we must make brief mention of certain events in order that our points may be well taken.

REPORT OF CASES

CASE 1.—A child, aged 12 years, had two teeth extracted under gas in October, 1922. Severe cough developed and continued after extraction. Shortly after this, in spite of the cough, the patient had an operation for ingrowing toe nail, under ether anesthesia. When the cough continued, it was thought to be due to the ether, until the patient became quite ill in January, more than two months after the teeth were extracted. A clever clinical diagnosis of foreign body was made and confirmed by roentgenographic study. Figure 1 *A* shows the foreign body and a lobar distribution of pathologic change. Figure 1 *B* shows, after removal, little change except absence of the tooth. The heart is displaced only slightly to the affected side, so that there is only a slight element of collapse. The lung really has the appearance of a pneumonia. It is filled with a tenacious exudate that will disappear gradually and, under favorable conditions, will leave no bad results; in other words, there is no destruction of tissue, and the exudate will gradually be absorbed.

CASE 2.—Figure 2 *A* shows a screw lodged in the left main bronchus, head downward. There is rather marked displacement of the heart to the left, and its left border is indistinct. One can also see evidence of disease in the inner portion of the right lower lobe. Figure 2 *B* shows clearly that the screw is not in the esophagus. The displacement of the heart shows that there is a definite degree of atelectasis, and the absence of dense irregular shadows indicates that there is no large amount of exudate or extensive tissue change. On the right side, the lesion is clearly the result of aspiration of infectious material from the left lung, or it is possible that the screw has spent part of its sojourn in the right bronchus. After removal of the screw, the chest returned almost to normal except that a more recent infection has developed near the root on the right side.

The mother saw the accident but did not know that the child had swallowed anything. The screw was discovered by roentgen-ray examination one year and nine months after the accident. In this case, the roentgenographic evidence of lesion

* Read before the Section on Radiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Jackson, Chevalier: Observations on the pathology of Foreign Bodies in the Air and Food Passages, Mütter Lecture, College of Physicians, Philadelphia, December, 1917.

was due mostly to actual mechanical obstruction by the foreign body. In other words, atelectasis was the predominant sign. The foreign body must have moved from time to time to permit drainage, or there would have been destruction of lung tissue and cavitation.

CASE 3.—An umbrella-headed tack in the right lower lobe bronchus for two years and two months caused actual destruction of lung tissue, fibrosis, cavitation, narrowing of the bronchial lumen, and involvement by extension of the pleura

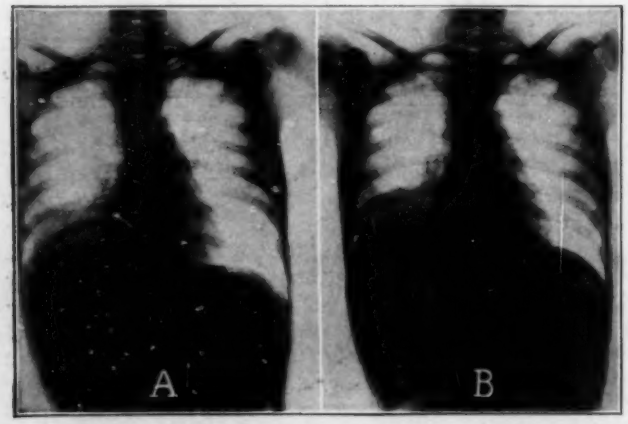

Fig. 1 (case 1).—*A*, appearance of tooth in lung and lobar distribution of pathologic change; *B*, appearance of lungs after removal of foreign body, showing little change.

over the base of the lung. Displacement here was due to contraction of scar tissue and adhesions.

We could not demonstrate a stricture, but we knew that drainage had been bad and that since the tack was not at the apex of the pathologic lesion, it was an instance when the foreign body had gone by way of ulceration into the dependent portion of a cavity. Bronchoscopically, Dr. Jackson found this cavity practically filled with granulation tissue. A certain amount of injury here was permanent, but much was gained by improving drainage and removing the irritant foreign body. The permanent changes will be in the nature of fibrosis, bronchiectasis, and diaphragmatic adhesions.

CASE 4.—Six years after a staple had been aspirated into the left bronchus, we found a completely airless lung. The

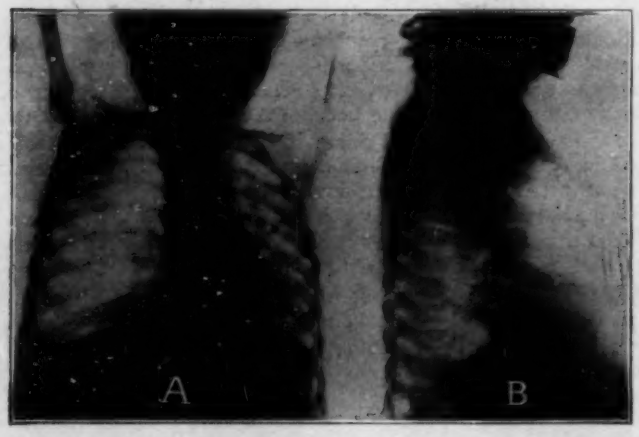

Fig. 2 (case 2).—*A*, screw lodged in main bronchus, head downward; *B*, lateral view, showing clearly that screw is not in esophagus.

patient came with a history of having had a pint of pus removed through the chest wall, and this led us to believe that the child had a large empyema together with the staple in the lung. Displacement of the heart toward the right also encouraged us to the empyema view.

Through an incision, however, it was clear that the pleural cavity was obliterated by adhesions, so that we were forced to the view that the lung was overdistended with pus, and that there must be a tight stricture or another cause of bronchial obstruction than the foreign body. Dr. Jackson found this obstruction to be due to granulation tissue. Even though large quantities of pus were removed at the same time as the staple, yet only small quantities of air could be seen in the roentgenogram taken afterward. The right lung has remained free from infection. Extensive permanent injury has been done to the left lung.

CASE 5.—A nail aspirated in the presence of the child's father, and looked for in the stools for some time, was forgotten. The child had pneumonia each year. About nine years after the accident, the pneumonia did not clear up immediately, and roentgenographic examination by Dr. Cole of Indianapolis revealed the foreign body. Numerous attempts at removal succeeded in dilating strictures and in bringing about better drainage before the patient came to the Jefferson Hospital. Dr. Jackson found the nail embedded in fibrous tissue and granulations in the lower portion of the left upper lobe, a most unusual location. I believe it arrived there partly by way of ulceration. Irreparable injury resulted, but clinically the boy was in remarkably good condition. There was no evidence of pathologic change in the right lung. It is probable that the repeated attacks of pneumonia were only instances in which the infection became more active and drainage impaired. We were not able to follow up this case, but we feel certain that the child has a permanent and rather extensive bronchiectasis.

CASE 6.—A collar button with a sojourn of only two and a half years produced just as extensive destruction as the

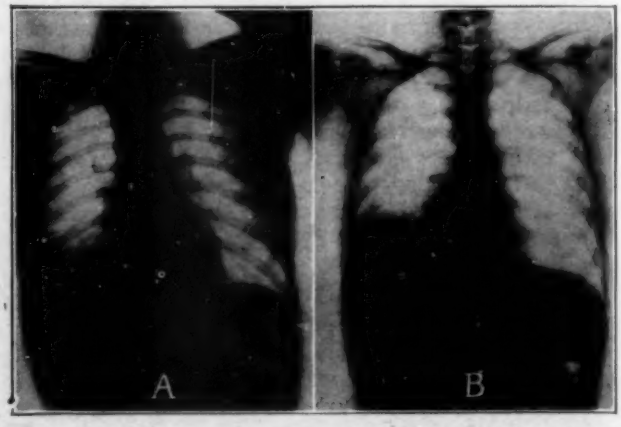

Fig. 3 (case 3).—*A*, umbrella-headed tack in right lower lobe bronchus; *B*, appearance after removal of foreign body, showing fibrosis, bronchiectasis and diaphragmatic adhesions.

nail described in case 5 did in nine years. This was clearly because of poor drainage. Dr. Jackson found a stricture of very narrow caliber in the main bronchus above the level of the upper lobe bronchus. This stricture was unusually firm. Many bronchoscopies were done just to dilate it, because it was impossible to draw the foreign body through, even though it had been grasped by forceps. Finally, the collar button was expelled spontaneously while the patient was swinging from a tree by her legs, with the head down. A roentgenogram, seven years after removal, shows that the left lung is only a mass of bronchiectatic and abscess cavities and fibrosis. The right lung is remarkably free from evidence of lesion.

This child was taken to a large hospital at the time of the accident, where she was given a glass of water and sent home after having had a most severe strangling attack. It took two and one-half years to find a physician who paid any attention to the history of foreign body aspiration.

CASE 7.—For thirty-five years, a round-headed shawl pin lay in the bottom of a very large cavity occupying nearly all of the right lower lobe. The outline of the cavity wall was very smooth. During the years the infection had subsided in the tissues external to the cavities—in fact, the outline had more the appearance of a cyst than of a chronic infectious process. Hemorrhage was frequent and severe during the patient's last year and finally caused death. At necropsy it was found that even some of the dorsal vertebrae were involved, and that the lesion had become malignant.

I have described almost all conceivable stages of infectious changes ranging from two months to thirty-five years.

On the oher hand, we find cases of long sojourn that show comparatively little gross pathologic change, but in which the patients give a history of intermittent acute febrile attacks.

CASE 8.—A beauty pin remained in the left lower lobe in a girl for eighteen years. She told of swallowing it, at 3 years of age, but since a pin like it was found, no attention was paid to the child's story. Figure 6 shows exudate in the lung distal to the foreign body. There is no fibrosis, cavitation or collapse, and the lung cleared up perfectly soon after removal. A recent letter from Dr. R. G. Allison, Minneapolis, assures me that the patient has remained quite well since the removal of the foreign body, Nov. 3, 1919.

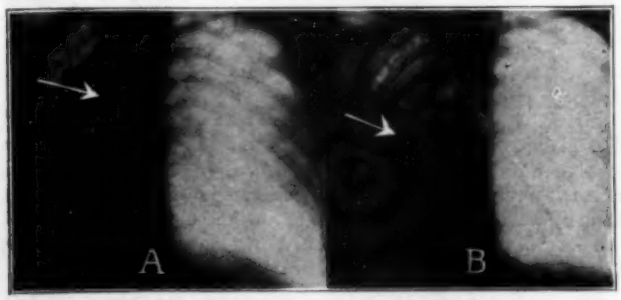

Fig. 4 (case 6).—*A*, collar button in lung; *B*, appearance seven years after removal, showing left lung a mass of bronchiectatic and abscess cavities and fibrosis and right lung normal.

CASE 9.—A pencil cap remained in the left lower lobe bronchus of a woman, aged 21, without producing any extensive destruction, but there were symptoms and hemorrhages and, with the bronchoscope, Dr. Jackson found both a stricture and a cavity that we could not demonstrate. The patient has gradually regained her health since removal.

Fig. 5 (case 7).—Appearance after partial removal of shawl pin that had been embedded for thirty-five years.

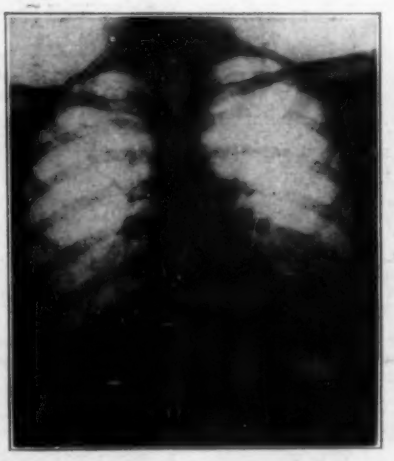

Fig. 6 (case 8).—Beauty pin in left lower lobe, showing exudate in lung distal to foreign body.

More than ordinary trauma may be done by foreign bodies so that the pathologic process may be complicated.

CASE 10.—In this case, the point of a tack punctured the wall of the main bronchus and produced a definite reaction in the parenchyma, adjacent to the point of the tack. The lower and middle lobes were partly collapsed and partly filled with dense exudate. All of this cleared up in time. There had been no instrumentation. There should be no permanent injury.

CASE 11.—In this case, in which a tack had evidently punctured the bronchus and pleura, an attempt had been made at removal before Dr. Jackson or I saw the patient, and it is possible that the trauma was partly instrumental. The pneumothorax disappeared, and the lung returned to normal after removal of the foreign body.

CASE 12.—A fence staple in some portion of the left lung punctured the bronchus and pleura. An unusually large pyopneumothorax developed. The foreign body was removed surgically through a thoracotomy wound. The instruments were guided by means of the double-plane fluoroscope. This lung returned to normal. While it was subjected to complete collapse, yet there had been no intrapulmonary destruction. The patient made a very satisfactory response to treatment for the empyema.

CASE 13.—A tack corroded through a bronchus and caused an empyema. This was drained surgically through the chest wall. Later, a fistula developed between the empyema cavity and the esophagus. Previous instrumentation may have had some influence on the esophageal fistula.

All of these fistulas and infections cleared up, but permanent fibrosis and contraction of the right lower lobe remains.

CASE 14.—This case is one in which we had no history of foreign body aspiration but, from the location, the resemblance of the roentgenographic shadows to known foreign body cases, and in the absence of history to explain the chronic infection, we expressed the opinion that this was in the nature of an aspiration infection. After repeated bronchoscopies, Dr. Clerf saw a black speck through the bronchoscope and succeeded in pulling out a timothy head. Symptoms had been present two years or more. During the course of bronchoscopic treatment, the roentgenographic signs varied only a little; however, the child made wonderful progress in regaining health. There will be slight permanent change in the way of fibrosis and probably bronchiectasis.

CASE 15.—This case illustrates another point of view. A patient was known to have aspirated a foreign body. It was thought that it cast a positive shadow, and several attempts at removal had been made before he came to Dr. Jackson. The shadow mentioned was quite dense, and not much unlike the size and shape of the button supposed to have been aspirated. However, the object casting the shadow was well out in the parenchyma. There was no evidence of pathologic change distal to it. On the other hand, there was evidence of a pathologic process at the inner posterior portion of the right lower lobe, which had the appearance of a chronic infectious process such as would probably be caused by the foreign body. On this advice, Dr. Jackson removed the foreign body from the posterior branch of the right lower lobe and did not disturb the calcareous deposit in the parenchyma of the right lower lobe.

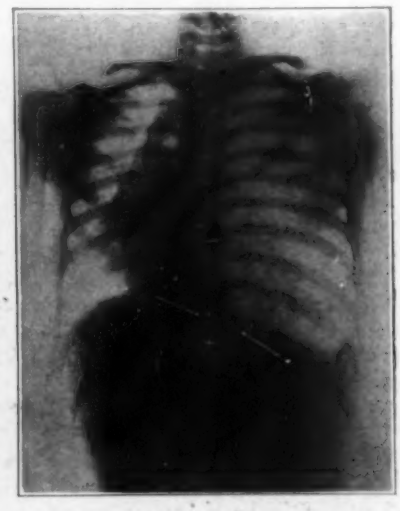

Fig. 7 (case 12).—Fence staple in left lung, which has punctured the bronchus and pleura.

CASE 16.—This case shows a still different phase. A piece of bone in the right lower lobe bronchus kept up an almost

constant illness characterized by cough, purulent expectoration, slight hemorrhage and irregular fever for about eleven years, during which time the man had been in tuberculosis sanatoriums on various occasions, but no bacilli of tuberculosis were ever found.

Roentgenograms of the chest showed not only the dense pathologic process in the right lower lobe, but also a definite reaction of the root structures and peribronchial tissues generally. Nearly four years later, the general peribronchial

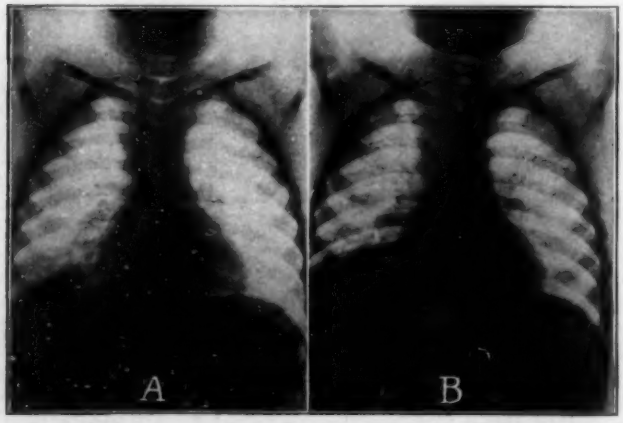

Fig. 8 (case 14).—Appearance after removal of timothy head: *A*, inspiration; *B*, expiration.

thickening had cleared, but there remained evidence of pathologic change in the lower lobe. As a matter of fact, this main focus of infection at the former site of the foreign body shows a tendency to recurrence. Repeated bronchoscopies to improve drainage are indicated.

CASE 17.—There was an indefinite history of foreign body in this case, but I had not heard of it before my first examination. It is evident, as shown in figure 9 *A*, that there was complete collapse of the right lower and middle lobes. The displacement of the heart to the right shows this clearly. It was quite evident that the right stem bronchus was obstructed. By all odds the most likely cause, in the absence of any definite history, was foreign body, not sufficiently opaque to cast a shadow. Dr. Clerf found a piece of bone fitting tightly in a very narrow stricture. In fact, figure 9 *B* shows complete closure of the bronchus by means of a small quantity of bismuth subcarbonate insufflated through the bronchoscope. This was done after removal of the foreign body.

CASE 18.—This case illustrates what I believe to be pathologic change of the permanent type due to a foreign body that had probably been expelled spontaneously at some time during the course of the disease. There was a history of aspiration of one or more coffee beans thirty-two years prior to this study, and also a history of spontaneous expulsion of one of them about one month after the accident. Subsequent history strongly suggested retention of more foreign body. There was almost every conceivable stage of pathologic change due to long-standing chronic infection. After insufflation of bismuth subcarbonate through the bronchoscope, we could recognize extensive bronchiectasis in the left lower lobe.

CONCLUSIONS

An aspirated foreign body in any portion of the tracheobronchial tree will sooner or later cause extensive permanent injury.

There is great variation as to the length of time a foreign body may be present before causing extensive changes, but those that interfere with drainage do, as a rule, cause injury early.

The permanent pathologic change is distal to the point at which drainage is blocked. The foreign body is at or distal to this point.

The end-results are in the nature of atelectasis, fibrosis, bronchiectasis and chronic abscess, with varying quantities of purulent exudate. Hemorrhage is common; tuberculosis is often suspected but is rarely present. The other lung remains remarkably free from pathologic change.

I believe that many of the onesided, chronic, basal infections are the result of foreign body, regardless of history or of roentgenographic shadow of foreign body. Such lesions should at least be investigated bronchoscopically, and many should be treated in this manner.

235 South Fifteenth Street.

ABSTRACT OF DISCUSSION

DR. P. M. HICKEY, Ann Arbor, Mich: I should like to ask Dr. Manges as to the type of infection in these cases. What type of micro-organism has been found in the cases in which extensive reaction has been demonstrated? I should also like to ask him to state his opinion as to the comparative value of the bismuth subcarbonate insufflations as compared with the injection of iodized oil in these cases.

DR. L. R. SANTE, St. Louis: I have in mind one instance that might be of interest. A girl who had previously been operated on for an empyema was found also to have involvement of the lung structure. It was a very extensive suppurative case, and a lung abscess was present which ruptured into a localized empyema and had caused this pocket of infection. She apparently recovered after the operation but never returned fully to health. Two years afterward she came for examination, and the diagnosis of an active lung abscess was made at that time. The lung abscess produced the signs and symptoms of tuberculosis so typically that any one would easily be misled. She had night sweats, cough, sputum, loss of weight, and everything that would go with the picture of tuberculosis. She even had repeated hemorrhages. There was a point in the history which was significant, however: repeated sputum examinations were always negative for tubercle bacilli. With the diagnosis of lung abscess she was referred to a lung sur-

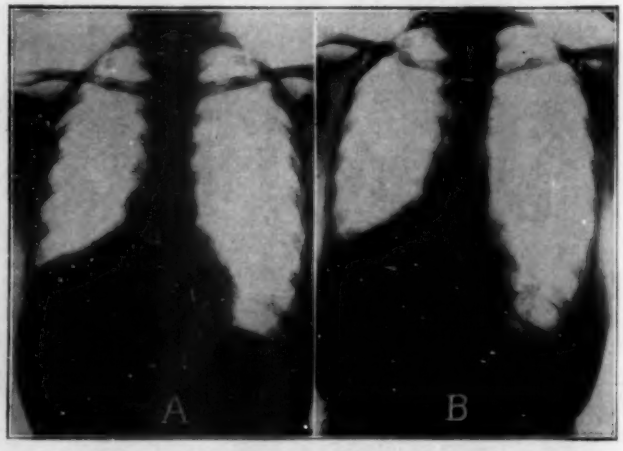

Fig. 9 (case 17).—*A*, foreign body in lung, showing complete collapse of right lower and middle lobes; *B*, complete closure of bronchus after bismuth subcarbonate insufflation and removal of foreign body.

geon, who opened up the abscess cavity. In the center of the cavity a piece of bone was found about twice the size of the thumb nail, probably a fragment of rib from a former operation. Reexamination of the films taken previously disclosed this definite piece of foreign material. It was very difficult to see, but knowing that it was present we were able to say that it had been there some time but had simply been missed in the examination. This adds another trend of thought to foreign bodies in the lung; they can get there by means other than by aspiration. With the extraction of the foreign body, the abscess promptly healed.

DR. WILLIS F. MANGES, Philadelphia: I cannot give Dr. Hickey a definite answer to his first question. I have not followed closely the bacteriologic studies of these cases. They are, however, essentially a mixed type of infection. Practically every sort of organism is present, not a pure strain of any virulent organism; otherwise the patient would not go into a prolonged chronic stage. These cases resemble, clinically, tuberculosis. Regarding Dr. Hickey's question as to the comparative value of bismuth subcarbonate and iodized oil introduced bronchoscopically for diagnostic purposes, I think both

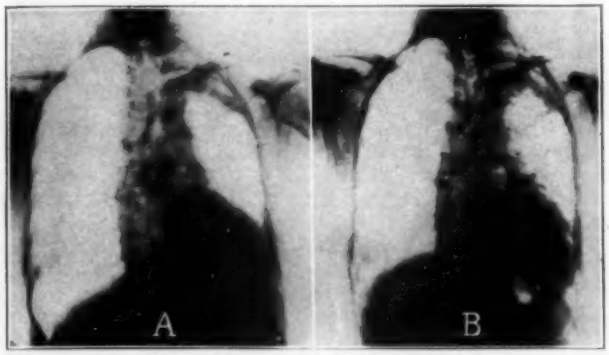

Fig. 10 (case 18).—*A*, permanent pathologic change due to expelled foreign body; *B*, appearance after bismuth subcarbonate insufflation.

have advantages and disadvantages. If we want to determine the location of a process with relation to some particular bronchial branch, we very much prefer bismuth subcarbonate insufflation. If one wishes to outline the lower lobe bronchus one should have the bronchoscope below the middle lobe bronchus on the right side. That can be done, but the bismuth will not go beyond the third or fourth division of the bronchial tubes. If one wants to determine whether a branch of the bronchus is actually obstructed, for instance by a bronchial growth, I prefer bismuth subcarbonate to iodized oil. If I want to determine whether cavities are present in the distal portions of the lung, bronchiectatic cavities, then I prefer to use the iodized oil and again introduce it through the bronchoscope and try to get it in the exact place to be studied. Dr. Sante's case is an interesting one. What I wanted to do was to make clear the importance of considering every irregular so-called tuberculous case, the type in which tubercle bacilli are not found, but which has been considered tuberculosis for many years, a potential foreign body case because the history may have been almost entirely forgotten. The second thought is that there are just as many nonopaque foreign bodies as opaque, and simply because one does not see the shadow of a tack or a horseshoe or something else in the lung is no reason why one should not suspect a piece of grass or some other vegetable matter, a piece of wood, a piece of bone, or something else. We consider those one-sided basal chronic infections foreign body cases until we have proved that they are not.

The New Psychologists.—The new psychologists seem to me to fail, first, because they are, broadly speaking, entirely and gloriously ignorant of clinical psychiatry. They know nothing really worth mentioning about the clinical symptoms, course, management and treatment of the psychoses. Secondly, they apply their psychopathology, secundum artem, to every case which comes their way, and do not rest until they have reduced it to a formula which meets with their own entire satisfaction. The attitude of the average alienist is almost too terrible to talk about. Irritated no doubt by the deus ex machina attitude of the psychologist, he expresses himself with great force and heat, and an almost entire absence of light. All psychology, psychopathology and psychotherapy are represented to him by the one word "Freud." . . . The extraordinary thing is that those who explain most clearly just where Freud has failed do so in the very language which he has made part of the current coin of our specialty.—Yellowlees, Henry: *Lancet*, Sept. 4, 1926.

MECKEL'S DIVERTICULUM AS A CAUSE OF INTESTINAL HEMORRHAGE*

ISAAC A. ABT, M.D.
AND
ALFRED A. STRAUSS, M.D.
CHICAGO

The father of Johann Friedrich Meckel (1781-1833) of Halle was a distinguished professor of anatomy and surgery as well as a medical editor. Meckel's grandfather, Johann Friedrich the elder, published a noteworthy dissertation on the fifth nerve (Meckel's ganglion). He was professor of anatomy, obstetrics and botany in Berlin (1751). The younger Meckel consequently came from a distinguished line of anatomists, and he himself was an eminent pathologist. Garrison says of him that he was the greatest comparative anatomist of Germany before Johannes Müller. He has been called the German Cuvier. He published treatises on pathologic anatomy, normal human anatomy and comparative anatomy, and he was the discoverer of the Meckel's diverticulum of the intestines, though Littré observed the diverticulum in a hernia in 1770, and it was familiar to Ruysch, who illustrated it in 1701. Meckel, however, described its anatomic origin. He recognized it as the omphalomesenteric or vitelline duct, which represents the communication between the yolk-sac and the primitive digestive tube in early fetal life.

Meckel's diverticulum, or the remains of the proximal part of the vitelline duct, consists of a pouch, which projects from the lower part of the ileum. Its lumen

Fig. 1 (case 1).—The tumor (Meckel's diverticulum) embedded in mesentery.

is generally equal to that of the ileum, and its blind extremity may be free, or it may be connected with the abdominal wall. It may remain patulous, connecting with the umbilicus, and constitute a fecal fistula, or it may persist as a fibrous band connected with some other part of the intestine. It is present in from 1 to 3 per cent of all patients examined at necropsy.

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* From the Pediatric and Surgical Departments of the Michael Reese Hospital.

* Read before the Section on Diseases of Children at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

The various authors who have written on pathologic changes due to the persistence of Meckel's diverticulum mention the occurrence of strangulation, fecal fistula, with patency of the duct at the umbilicus, and cystic tumor, due to the obliteration of the duct at both ends.[1] Concretions [2] have been described which vary from calculi the size of barley grains to those as large as a pigeon's egg. Stenosis of the ileum may be caused by the traction of the diverticulum, in which case the distal end is attached to the abdominal wall or some other viscus.

Fig. 2 (case 1).—The defect in the ileum after resection of the diverticulum.

The diverticulum may invaginate itself into the ileum without causing complete obstruction of the bowel, though moderate intestinal hemorrhage usually ensues when this occurs. On the other hand, the diverticulum may invaginate itself into the ileum and lead to the telescoping of the bowel, which will produce the classic symptoms of intussusception.

Volvulus may occur in the diverticulum itself, or volvulus may be produced in the ileum by traction of the diverticulum. In order that this may occur, the distal end of the diverticulum must also be attached to the abdominal wall or to some other viscus.

The diverticulum may be found in inguinal and femoral hernias.

J. P. C. Griffith,[3] in an exhaustive monograph, discusses inflammation of the diverticulum. He would distinguish between primary and secondary diverticulitis. In the latter type, the inflammation is due to constriction or strangulation in a hernial sac, the inflammatory reaction resulting from strangulation, interference with the circulation and consequent infection. In primary diverticulitis, the process may be acute or chronic, and in either case, he thinks that the pathologic change is analogous to that which occurs in appendicitis. He observes that perforation may occur from ulceration without the presence of gangrene. In the case that Griffith describes, intestinal hemorrhage was for a time the most marked symptom. He further observes that there may be some degree of constipation, or that actual obstruction may occur from compression of the intestines, by inflammatory adhesions or by kinking.

The question arises whether the hemorrhage which occurred in Griffith's case was due to diverticulitis or to some other cause. A discussion of this point will be reserved for consideration later on.

Three children have come under our observation, in whom the most striking symptom was intestinal hemorrhage. The histories will be given in brief.

REPORT OF CASES

CASE 1.—In February, 1919, a girl, aged 2 years, came under our observation. In November, 1918, the infant, then 1 year and 8 months old, began having black, tarry stools. Simultaneously, she became increasingly pale. There were occasional abdominal cramps, and it was noted that, following these cramps, the black tarry stools were passed. The existence of hemorrhage from the bowel was obvious, but treatment with horse serum, intramuscularly, and bismuth by mouth did not control the condition. About two weeks later, there were further severe hemorrhages followed by several more after two months. During January, the hemorrhages occurred at intervals of from eight to thirteen days. Other details of importance were that the hemorrhages seemed to be induced by constipation and that the infant manifested pica, having ingested such things as tooth picks and the bark of a tree.

The child was fairly well developed but severely anemic. The abdomen was soft and relaxed. No tumor mass was palpable. Nothing abnormal was found.

The stools were black. Chemical tests for blood were positive. The blood was intimately mixed with the stool, indicating that the lesion present was either in the stomach or small intestine and not in the colon. The absence of vomiting precluded the existence of a lesion in the stomach.

The blood count was: hemoglobin, 20 per cent; erythrocytes, 1,500,000; leukocytes, 9,500. Fluoroscopic and roentgenographic examination did not reveal the location of the lesion.

On consideration of these examinations, it was fairly evident that the bleeding was in the jejunum or ileum, since lesions of the duodenum can usually be seen on the roentgenogram. An exploratory laparotomy seemed justified.

Because of the severe anemia, two transfusions of blood were given, one two days and the other immediately before operation. A small right rectus incision was the means of approach. A loop of the ileum about 8 inches from the ileocecal valve was found attached to the mesentery of another loop of the ileum proximally. When this was dissected out, the superior mesenteric artery and its branches being avoided, a mass was found embedded in the involved mesentery (fig. 1). It was hollow, about the size and shape of a large mushroom, with its stem joined to the ileum at the point of its mesenteric attachment; i. e., 8 inches from the ileocecal valve. It was inflamed, indurated and infiltrated with blood, the induration being greater at the dome. The mass was resected from the ileum by a V-shaped incision, and the defect in the bowel closed by an end-to-end anastomosis (figs. 2 and 3).

The inflammatory process was so extensive that the character of the pathologic change was not recognized at the operation. Only after a careful histologic examination was it found to be a Meckel's diverticulum. Ulcerations and remnants of gastric mucosa were found at the apex of the tumor. The inflammatory process was infiltrative and fibrotic similar to that found around a peptic ulcer.

Fig. 3 (case 1).—Repair completed by end to end anastomosis.

The recovery following operation was uneventful. The blood disappeared from the stools, and after three weeks the child left the hospital in good condition.

CASE 2.—A boy, aged 11 months, well nourished and breast fed, was brought into the hospital, Sept. 11, 1922, because he had suffered repeated hemorrhages from the bowel. The bleeding was first noticed when the baby was 9 months old. On this occasion, the mother observed when she picked him up that the diapers were soaked through and through with bright red blood. The bleeding continued during the entire

1. Fox: Lancet, 1898. Cawardine: Brit. M. J., 1897. Griffith, J. P. C.: Tr. Am. Pediat. Soc., 1914.
2. Beach: Am. Surg., 1896. Sherren: Tr. Roy. Soc. Med., 1909.
3. Griffith, J. P. C.: Tr. Am. Pediat. Soc., 1914.

day, but after that time only slight blood stains on the diapers were seen. Following these initial hemorrhages, the child seemed in perfect health, slept well, took his food normally, and appeared perfectly happy. Two months later the blood reappeared. At about this time, the child cried almost incessantly and strained ineffectually to make the bowels move. He was very pale and had what the mother described as a fainting attack. The bleeding, increasing pallor and straining at the stool continued until the paticnt was admitted to the hospital.

Fig. 4 (case 2).—Meckel's diverticulum adherent to appendix and cecum.

In view of the continuous bleeding and increasing pallor, an exploratory laparotomy was decided on. The diverticulum in this case was found about 2½ inches from the ileocecal valve. The proximal end was normal, while the distal end was infiltrated and surmounted by three knoblike swellings attached to the cecum and the appendix (fig. 4). The diverticulum was dark, because of its bloody contents. It was dissected away from the cecum and appendix, and a V-shaped resection was made as in the previous case (fig. 5). On incision, the mucosa was found ulcerated in several places at the blind end of the diverticulum, and it contained both dark, probably old, blood, and a considerable quantity of more recent origin.

CASE 3.—J. K., a boy, aged 11 months, was admitted to the hospital, Nov. 1, 1925. The mother first observed that the child passed black stools in September, 1925, and that he was growing pale. Before the child was admitted into the hospital, roentgen-ray examination of the gastro-intestinal tract was made, which did not show the source of the hemorrhage. The child was also given a blood transfusion before admission. He had a fair appetite, but was very restless at night, waking up frequently at short intervals. He was plump and happy most of the time and apparently suffered no pain or discomfort.

The stools were black, and they reacted positively to the chemical tests for blood.

After a second blood transfusion, the child was anesthetized and a laparotomy performed. The operation revealed a large Meckel's diverticulum 18 inches long, filled with blood which gave it a bluish-black color. Its lumen was about equal to that of the colon. It took its origin from the ileum about 4 inches above the ileocecal valve, and was situated so that it ran parallel to the ileum and was enclosed in the mesentery. The diverticulum was richly supplied with blood, the vessels entering it being parallel to those supplying the loop of the ileum.

The wall of the diverticulum was constricted at three points. It was thought that these constrictions were due to thickening of the mesentery and the looping of the blood vessels (fig. 6).

The problem that presented itself was whether to attempt to remove the tumor mass from between the plates of the mesentery without injuring the blood vessels or to do a block resection of the mass plus the ileum and the mesentery in which it was situated. We felt that a 9 months old child, very anemic and in poor condition, would not survive the shock of so extensive an operation, and decided on the following procedure:

The diverticulum was resected at the point at which it was attached, and the opening in the ileum was closed. The plates of the mesentery in which the diverticulum lay were separated, and the vessels directly supplying the diverticulum were ligated and divided (fig. 7). Incisions (longitudinal to the fibers of the mesentery, but transverse to the bowel) were made in the mesentery every 3 or 4 inches along the course of the diverticulum, and the leaves of the mesentery were separated. The diverticulum was then slipped out from between the leaves of the mesentery until it was completely dissected out. The openings in the mesentery were then carefully closed with gastro-intestinal catgut, all raw surfaces being covered over (fig. 8).

The microscopic examination of the resected diverticulum showed that there was a completely formed intestinal wall composed of two layers of muscle, longitudinal and circular, nerve plexuses, submucosa and mucosa.

The mucous membrane showed the characteristic structure of the intestinal mucosa. No ulcers were described in the pathologic report, though we may assume that their presence may have been overlooked, especially in the light of our previous experience, as well as from a review of the recent literature.

COMMENT

The principal symptom in these cases was the occurrence of intestinal hemorrhage, and this is the point which we desire especially to stress in our paper. The literature that covers the subject of hemorrhage is meager, though the general literature on the subject of Meckel's diverticulum is very extensive.

A recent contribution by Stulz and Woringer [4] contains a review of the literature and attempts an explanation of the intestinal hemorrhage. They report two cases of their own and refer to ten in the literature, including one reported by Jackson, in 1924. In addition to these, the case of Griffith,[3] and that of Callender,[5] as well as that of Meyer,[6] may be cited.

Georg Schaetz,[7] in an extensive study of the pathology and histology of Meckel's diverticulum, shows that gastric epithelium was found at the tip of the diverticulum in five out of thirty patients (16.6 per cent)

Fig. 5.—Meckel's diverticulum after adhesions to cecum have been freed. Dotted line indicates point of resection.

that were examined. These islets of gastric cells, he finds, may be the site of ulceration, similar to the peptic ulcer. They may lead to perforation or hemorrhage similar to that which occurs in gastric or duodenal ulcer. These ulcers may be situated at the tip of the divertic-

4. Stulz, E., and Woringer, P.: Paris méd. **2**: 387 (Nov. 7) 1925.
5. Callender, G. R.: Am. J. M. Sc., July, 1915.
6. Meyer: Deutsche. Ztschr. f. Chir., 1912.
7. Schaetz, Georg.: Beitr. z. path. Anat. u. z. allg. Pathol. **74**, nos. 1, 2 and 3.

ulum or on the lateral walls. It is interesting in this connection to note that Schaetz found epithelial cells identical with those that are found in the jejunum and, in 38.5 per cent of the cases, he found pancreas tissue. In a small percentage he found carcinoid tissue and scattered peritoneal epithelial cells.

The presence of gastric epithelium in the mucosa of Meckel's diverticulum with its tendency to produce

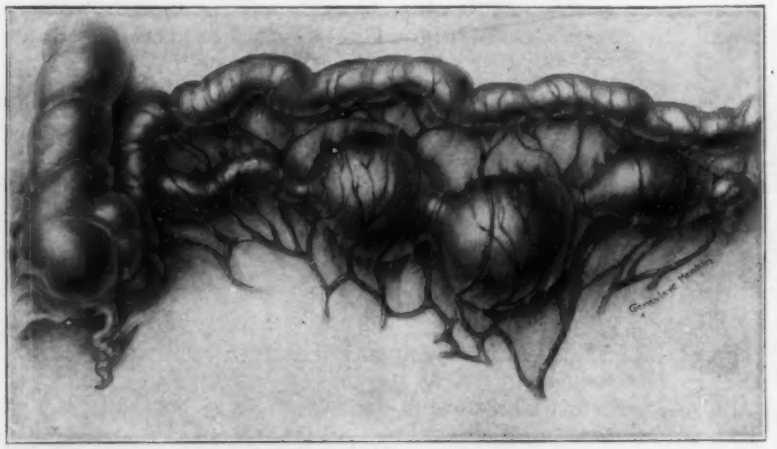

Fig. 6 (case 3).—Meckel's diverticulum embedded in mesentery. The three constrictions and the arrangement of the blood vessels should be noted.

ulcers would explain the hemorrhage and perforation that sometimes occur in this aberrant pouch. Whether the hemorrhage and perforation are caused in all cases by peptic ulcers in the diverticulum cannot be definitely maintained at this time. It is probable that, in some of the cases, the cells were not identified or the histologic examination was not made with this possibility in mind.

Stulz and Woringer assume that, in all cases in which hemorrhages or perforation take place in a Meckel's diverticulum, the cause is to be found in the ulceration of heteroplastic gastric mucosa.

In all the cases of which we have found mention, the hemorrhages arising from Meckel's diverticulum occurred in male children. Notwithstanding, one of our patients was a girl, aged 2 years. In reviewing the case reports of Stulz and Woringer, or Reginald Jackson, Hilgenreiner, Meulengracht, Muller, Megevaud and Dunant, Brasser, Hubschmann, Guibalet, Hallopeau and Humbert, we can formulate the symptomatology as it occurred in the cases of these observers as well as in our own.

Hemorrhage and perforation constitute the essential characteristics of this affection. From the case reports that appear in the literature, the symptomatology is grave, though our patients recovered after operation. Happily, the ulcer did not perforate in any of our cases. One should infer from this that these ulcers, like those that are gastric or duodenal, may present slight symptoms or remain latent for a long time.

In our patients, one began to bleed at 7 months, one at 9 months, and one at 22 months. The bleeding occurred intermittently, though one patient had persistent tarry stools. The other two had occasional hemorrhages consisting at times of bright red blood and at other times of tarry stools. The persistent or occasional loss of blood continued for about two months in all three cases, and in this period a high degree of anemia developed. In one instance the hemorrhage was profuse, the mother having reported that the diaper was soaked with bright red blood and that it contained no feces. The same kind of hemorrhage, severe in character, occurred on two successive occasions. In another of our patients, the blood was freely mixed with the stool and was tarry in character. It is the tendency toward repetition of the hemorrhages that is characteristic.

As we have already stated, in none of our patients did perforation occur, but that it is a frequent complication may be judged from the fact that it occurred ten times out of thirteen reported cases.

Perforation may occur during the period of hemorrhage, or it may take place months after the hemorrhage has ceased. Vague abdominal pains may occur. There is nothing definite concerning this pain. It is usually difficult or impossible for the children to localize it. It may, however, be referred to a definite region, and be constantly present or colicky in character. Palpation of the abdomen does not aid in establishing the diagnosis. The abdomen is usually soft, without local tenderness.

The condition may last for years. Megevaud and Dunant report an operation on a patient, aged 28, who had hemorrhages during his fourth or fifth year. The prognosis is affected by the tendency for these ulcers to perforate. One should always think of the possibility of perforation after the first hemorrhage has occurred. Peritonitis may result after perforation, and severe and persisting anemia has caused death.

When an infant bleeds from the bowel, intussusception is the condition first thought of. Consequently, a bleeding Meckel's diverticulum must be differentiated

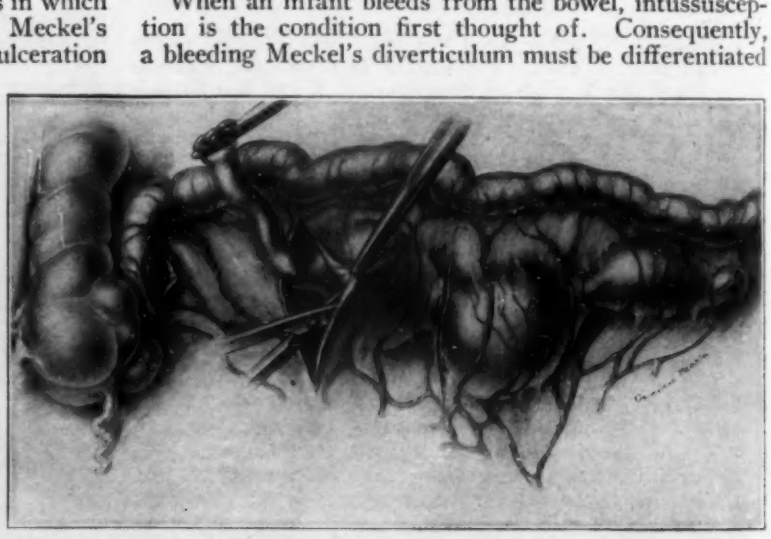

Fig. 7 (case 3).—Beginning of operative removal, showing the windows made in the mesentery and the point of detachment from the ileum.

from this condition. The initial sharp pain and colic, as well as vomiting, are marked in intussusception and usually absent in the bleeding diverticulum. In intussusception, the blood is usually small in quantity and intimately mixed with the mucus.

In the bleeding Meckel's diverticulum, the blood is abundant, not mixed with mucus. In some instances, it may be bright red. Frequently, it is black and tarry. If a tumor is felt, the diagnosis of intussusception may

be presumed, although this symptom is not always elicited.

Rectal polypi and dysentery may also produce bloody stools, but their differentiation should cause no difficulty.

Bleeding duodenal ulcer which occurs in children is usually ruled out by the roentgen rays, which show a defect in the duodenum characteristic of the condition.

If bleeding persists and a presumptive diagnosis of a Meckel's diverticulum can be established, exploratory laparotomy is indicated.

ABSTRACT OF DISCUSSION

DR. LUCIUS D. HILL, San Antonio, Texas: The lesson to be learned from this paper is the importance of ruling out other possible causes of intestinal hemorrhage enumerated, such as intussusception, dysentery and ulcerating rectal polypi. In view of the danger of perforation in these cases, operation should not be long deferred after other causes of hemorrhage are definitely ruled out. It seems plausible to me that the hemorrhage in these cases may arise in every instance from ulceration of the aberrant gastric mucosa which has been found to exist in this structure by so many observers. I have not been able to find in the literature any cases reported of this condition aside from those cited by the authors, nor have I seen such a case.

DR. C. U. MOORE, Portland, Ore.: I wish to add two cases of Meckel's diverticulum with intestinal hemorrhage occurring in half brothers born fifteen years apart. The mother said that her older boy was well until he was 4 years of age, when after six weeks of repeated hemorrhages he was operated on and cured. The younger boy was seen at 9 months of age after having had small intestinal hemorrhages about every second day for a month. The clinical observations were indeterminate. The blood picture at this time was that of a secondary anemia. A cystoscopic rectal examination revealed no bleeding points. Hemorrhages grew less frequent but more severe and contained bright red blood. Three transfusions were done. Improvement for a time followed each transfusion. Operation was performed by Dr. Rockey three months after the first hemorrhage. A Meckel's diverticulum was found surrounded by an inflammatory mass and containing an ulcer at the base as the probable source of the bleeding. The child made an uneventful recovery and has had no return of symptoms in the five years since the operation.

DR. J. B. STONE, Richmond, Va.: I recently had one of these cases. The child was 14 months old. The story was that it had a profuse hemorrhage from the bowels at the age of 4 months and several times subsequently at irregular intervals. Until that time it had been in perfect health. When I saw the child there had been no hemorrhage from the bowels for a period of several months, but at that time there was a profuse mucoid discharge through a small umbilical fistula. There was no bleeding. There was no further intestinal hemorrhage. Then after a period of several weeks, or perhaps a month, there was a profuse hemorrhage from the navel. These hemorrhages recurred several times and the child became extremely anemic. Blood was injected intramuscularly in the hope of stopping the bleeding, but it had no effect. A complete gastro-intestinal roentgen-ray examination showed nothing to account for the bleeding. An operation was performed and a Meckel's diverticulum was found with the distal end attached to the umbilicus. Microscopic examination of the diverticulum removed at operation showed the structure of the ileum. In the wall of this diverticulum was a piece of pancreatic tissue. The child made a good operative recovery, but unfortunately, about ten days later, it developed a severe diarrhea from which it died. The symptoms that Dr. Abt has enumerated struck me very forcibly in this case. There was the hemorrhage from the bowels, the straining at stool, constipation and severe attacks of pain, and in addition bleeding from the umbilicus.

DR. H. F. HELMHOLZ, Rochester, Minn.: The clinical picture described by the authors would make me think first of duodenal ulcer as the cause of hemorrhage. I have seen about fourteen cases of duodenal ulcer. The symptomatology as given would have fitted those cases in which there was hemorrhage alone as well as those in which the peritonitis developed secondarily. I think that in the differential diagnosis, especially during the first two years of life, the possibility of duodenal ulcer must be considered.

DR. F. C. NEFF, Kansas City, Mo.: I want to add one case. An 18 year old boy was brought in with acute peritonitis. It was found that he had a perforation of Meckel's diverticulum. He was operated on with subsequent recovery. I looked up the literature recently and noted particularly that during 1924-1925 there were two excellent articles in French journals in which relatively numerous cases were reported. I counted up what I could find reported in the literature and I judge that there are about eighteen cases. I would suppose, therefore, that the fact that it is being more frequently reported would indicate that the condition may not be as rare as we have been made to think.

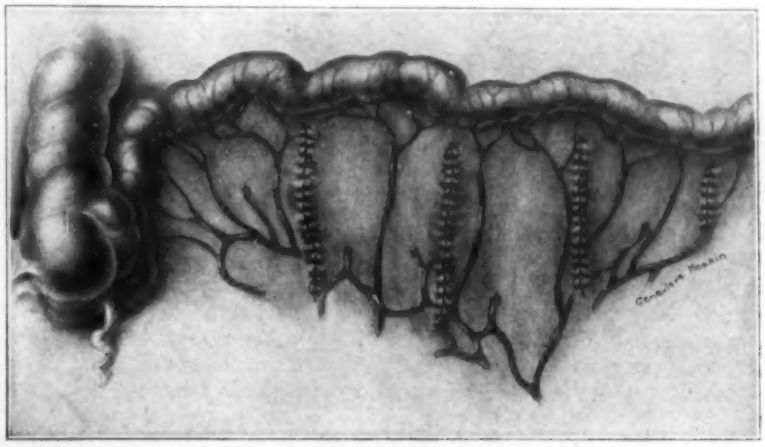

Fig. 8 (case 3).—Removal and repair complete.

DR. F. W. SCHLUTZ, Minneapolis: These cases do not always show the amount of hemorrhage Dr. Abt mentioned. I saw a case of this kind about a month ago. The baby was 3 months old. It had marked distention of the upper part of the abdomen. There was slight fever and practically no hemorrhage. There was no actual blood. Three things were considered: intussusception, volvulus and a strangulated Meckel's diverticulum. An operation was performed. An intussusception was present and a Meckel's diverticulum about 2 inches long, very much ulcerated and inflamed, was found 3 inches from the cecum. A resection of the bowel was necessary. The child died. The confusing symptom was the very small amount of hemorrhage present at any time. This was a case in which the strangulated Meckel's diverticulum was doubtless the cause of the trouble from the beginning and yet showed only a very moderate amount of hemorrhage.

DR. ALFRED A. STRAUSS, Chicago: I simply want to bring out a few points about the pathology as to the hemorrhage in these conditions. It seems to me that if there is ulceration in the end of the Meckel's diverticulum as it is in the mesentery, it establishes a very intense or rich collateral circulation. If there is ulceration in the dome of this buried Meckel's diverticulum, it gives it a rich blood supply which probably accounts for the hemorrhage. The last case is the most interesting one. The child was 9 months old. The difficulty from the surgical standpoint was to remove the diverticulum without destroying the blood supply to the ileum because the child at that age, and being such a poor surgical

risk, would not have been able to overcome the resection. So we have quite a difficult technical proposition to remove this without destroying the blood supply to the ileum. We split the mesentery longitudinally with the blood vessels. The diverticulum was removed by sections, being slipped out between the longitudinal incisions, without interfering with the blood supply to the ileum. One of the reasons ulceration has not been found is that the section was not cut open entirely. The interesting thing in this particular case undoubtedly was the retention of secretion from the mucosa itself, and the hemorrhage undoubtedly was then established. No matter how skilful the surgeon is, these children cannot be saved without blood transfusion before operation and blood transfusion after operation.

THE ETIOLOGY OF GRANULOMA INGUINALE *

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This study of the etiology of granuloma inguinale was undertaken for the purpose of determining the nature, transmissibility and differential diagnosis of the causative agent and the period of incubation of the infection.

Granuloma inguinale is manifested by a granulomatous proliferation and ulceration of the cutaneous and subcutaneous tissues about the inguinal region, often extending down to involve the external genitals (fig. 1).

HISTORY

The literature dealing with the etiology of granuloma inguinale is limited and inconclusive. Castellani [1] states that Conyers and Daniels, in 1895, first satisfactorily described granuloma inguinale, and it has since been considered a definite clinical and pathologic disease entity. Donovan,[2] in 1905, observed oval bodies measuring from 0.5 to 2 microns in diameter in macrophages, either scattered or in small compact groups, in smears made from granulomatous lesions of this disease, and expressed doubt as to their location in the animal kingdom. In subsequent literature, these bodies are called Donovan bodies. Flu, in 1911, quoted by Castellani [1] and others, described a pleomorphic bacterium found regularly in cultures from the lesion, which Aragao and Vianna [3] confirmed and classified as *Calymmatobacterium granulomatis*. Walker,[4] in 1918, stated that the essential etiologic factor was an encapsulated bacillus of the Friedländer group. Symmers and Frost,[5] in 1920, stated that the Donovan bodies either initiate or promote the tissue destruction. Randall, Small and Belk,[6] in 1922, reported the cultivation of a bacillus from three cases which they also identified as belonging to the Friedländer group. However, they failed to cultivate it from nine cases. In one typical lesion, Donovan bodies were demonstrated in five different smears. Yet four cultures were negative for the encapsulated bacillus of the Friedländer group. Gage,[7] in 1923, reviewed the literature and quoted Wise, Maitland and Bosonquet as having found spirochetes in direct smear from a typical lesion. Johns,[8] in 1924, found that it required differentiation to demonstrate the chromatin of the Donovan bodies. Because of this and the inability to stain them by simple and capsular stains, their slow disintegration into granular, pinkish masses, their intracellular nature and the nonconvincing proof of cultivation, he regarded them as protozoa. Cornwall and Peck,[9] in 1925, isolated from three cases a pleomorphic organism having characteristic beaded morphology seen only in young primary cultures. Living cultures of this organism injected subcutaneously into rabbits produced granulomatous lesions at the site of injection, the chronicity of which was not very well established.

SPONTANEOUS CASES

Observations made in fifteen spontaneous cases of granuloma inguinale are given in the accompanying table. All of the fifteen patients were negroes whose age ranged from 19 to 55 years. Ten were males and five females. Seven were single, five married and three widowed. Typical Donovan bodies were found in direct smear from lesions in fourteen cases and grown in pure culture from eight of these. The cultivated organism always presented similar morphologic and cultural characteristics, and morphologically was similar to Donovan bodies seen in direct smear from the lesions. Typical lesions (fig. 1), with elevated, granulomatous, slightly ulcerated surfaces oozing sanguinolent fluid, existed in ten cases and atypical, excavated ulcers in five. The inguinal region was involved in ten cases. One typical lesion was observed on the neck in one instance. The duration of these lesions ranges from

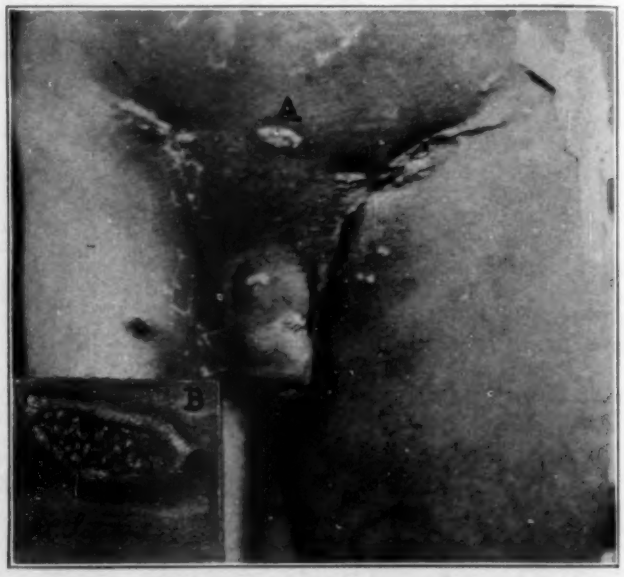

Fig. 1.—*A*, spontaneous case of granuloma inguinale (A. L.), showing multiple lesions about both inguinal regions, lower abdomen, inner aspect of both thighs and penis. *B*, typical lesion shown in greater detail. Left leg edematous, because of lymphatic obstruction in left inguinal region.

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* From the Department of Pathology and Bacteriology, University of Tennessee College of Medicine.

* Read before the Section on Pathology and Physiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

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4. Walker, E. L.: The Etiology of Granuloma Inguinale, J. M. Research **37**: 427 (Jan.) 1918.
5. Symmers, Douglas; and Frost, A. D.: Granuloma Inguinale in the United States, J. A. M. A. **74**: 1304 (May 8) 1920.
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7. Gage, I. M.: Granuloma Inguinale, Arch. Dermat. & Syph. **7**: 303 (March) 1923.
8. Johns, F. M.: Some Observations on Granuloma Inguinale and Cultural Studies of the Donovan Bodies, Proc. Internat. Conf. on Health Problems in Tropical America, 1924, p. 440.
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three weeks to thirteen years. Large mononuclear cells were most numerous in the exudate (fig. 3) obtained by aspirating the lesion with a large bore needle and syringe, while from the surface, the polymorphonuclears were most numerous. The encapsulated bacillus of Friedländer was cultivated from one case.

In sections made from biopsy material (fig. 2), fixed in formaldehyde and potassium bichromate[10] and stained with hematoxylin and eosin, the Donovan bodies were seen intracellularly and exhibited good cellular detail, with the oil immersion objective. In relatively young lesions, active proliferation of the endothelial cells lining the smallest capillaries was observed, and in cross section the uniform appearance of these capillaries was striking. Numerous plasma cells invade

tinated in dilutions of 1:80 in two cases. Complement fixation, precipitin and allergic tests with antigens prepared from organism cultures from an experimental case (S.) were done in one spontaneous case and were positive. In nine cases relapses occurred, and the remainder were early nontreated cases.

REPORT OF EXPERIMENTALLY TRANSMITTED CASE OF GRANULOMA INGUINALE

September 1, 1925, a piece of granulation tissue 3 by 3 by 3 mm., taken from the inguinal lesion in a spontaneous case (S. H.) containing Donovan bodies, was planted subcutaneously into the right inguinal region. The formol-gel test was twenty-four hours negative.

September 8, there was an ulcer at the site of graft, 2 by 1 by 0.5 cm., and well defined; the adjacent skin was glazed.

TABLE 1.—*Spontaneous Cases of Granuloma Inguinale* *

						Lesion									
									Exudate						
No.	Date, 1924	Name	Age	Sex	Marital State	Character	Site	Duration	Mononuclears	Donovan Body	Cultures	Biopsy	Formol-Gel Test	Treatment	Comment
1	10/ 1	M. N.	33	♂	S	Typical	Inguinal	2 yr.	....	+	No	....	5 min.	APT	Improvement
2	11/ 3	A. W.	25	♀	S	Atypical vaginal	Introitus vaginal	3 yr.	....	+	+	....	30 min.	APT	Improvement
3	11/17 1925	A. T.	25	♂	S	Atypical	Inguinal gland	6 wk.	....	+	+	....	3 hr.	APT	Improvement; suppurative adenitis
4	1/ 8	B. J.	55	♂	S	Typical	Inguinal and anal	13 yr.	....	+	No	....	2 hr.	APT	Improvement; died
5	2/ 1	R. F.	35	♂	M	Typical	Penile, scrotal and anal	12 yr.	85%	+	No	....	3 hr.	APT	Improvement; wife has no lesion
6	4/ 4	A. L.	40	♂	W	Typical, multiple	Inguinal, perineal	9 mo.	85%	+	+	Typ	30 min.	Ultraviolet ray, 2 doses	Twelve doses autogenous vaccine; 30 cc. sat. sol. KI; no improvement; GV 2.1 Gm. intravenously; improvement
7	4/ 7	S.	22	♀	M	Atypical	Vulval	3 mo.	50%	+	No	....	1 hr.	APT	Improvement; no transmission through coitus to six men
8	5/11	C. W.	30	♂	S	Typical	Inguinal	5 yr.	80%	+	No	....	12 hr.	APT	Improvement
9	5/11	M. G.	36	♀	W	Typical, healing	Anal and vulval	12 yr.	73%	—	—	....	6 hr.	APT	Improvement; previous APT treatment
10	7/11	J. M.	30	♂	S	Typical, multiple	Inguinal, anal and neck	2 yr.	45%	+	+	....	2 hr.	APT	Improvement; agglutinins in serum 1:80 dilution
11	9/ 1	S. H.	19	♂	S	Typical	Inguinal, perineal	5 yr.	82%	+	+	Typ	2 hr.	GV 0.734 Gm. intravenously in three doses	Tissue transplanted into experimental case (8); no Donovan bodies found after fifth dose of GV; improvement
12	9/ 3	O. R.	34	♂	M	Atypical	Inguinal	3 wk.	50%	+	BF	Typ	3 hr.	Autogenous vaccine, five doses	Tissue transplanted into guinea-pig; negative after three months; no improvement
13	10/12	W. W.	45	♂	M	Typical	Inguinal	7 yr.	82%	+	+	Typ	6 hr.	APT	Improvement
14	11/16	E. S.	40	♀	W	Atypical	Introitus vaginal	3 yr.	58%	+	+	Typ	12 hr.	APT and GV 0.1 Gm.	Many exposures through coitus; no transmissions; improvement
15	12/16	A. K.	30	♀	M	Typical	Introitus vaginal	4 yr.	70%	+	+	Typ	6 hr.	APT	Positive precipitin and allergy tests with antigen (S); husband not infected; improvement

* All the patients were negroes. Typ indicates typical; GV, gentian violet; KI, potassium iodide; BF, Bacillus of Friedländer; APT, antimony and potassium tartrate; ♂, male; ♀, female.

deeply the corium and subcutaneous tissues, and frequently show mitosis. In some areas fibroblasts predominate, while toward the surface the polymorphonucleated cells predominate. The large mononuclear cells so readily identified in smears made from the lesion are more numerous than the fibroblasts in some areas. The marginal epithelium is hyperplastic. The formol-gel test[11] was positive in fourteen cases.

Agglutination tests were tried with organisms obtained from a spontaneous case (A. L.) and agglu-

The formol-gel test was seventy-two hours negative. The lesion exudate contained phagocyted Donovan bodies and 50 per cent large mononuclear cells.

September 12, 1 cc. of a twenty-four hour broth culture, an organism from the spontaneous case (O. R.) (encapsulated bacillus of Friedländer) was injected subcutaneously into the left inguinal region. Simultaneously, a 1 cc., forty-eight hour, 1 per cent glycerin culture of organism from a spontaneous case (A. L.) was injected into the right inguinal region at a point distant from the site of the tissue transplant. Chill, fever and chest pains of three hours' duration followed.

September 15, the left inguinal gland was swollen, with very little tenderness and redness. There was less swelling on the right side. The graft ulcer was clean and healing.

September 19, the graft ulcer was healing and much smaller. The formol-gel test was six days negative. Ten per cent eosinophils and 30 per cent large mononuclear cells and a few

10. Equal parts of 10 per cent solution of formaldehyde and 2.5 per cent aqueous potassium bichromate is an excellent fixative fluid.

11. I first used this test [Memphis M. J. 2: 139, 1925] in cases of granuloma inguinale; it is as follows: To 1 cc. of patient's blood serum is added 1 drop of 37 per cent formaldehyde, and mixed thoroughly. Evaporation is prevented and the mixture allowed to stand for forty-eight hours. If positive, there is opacity and gelling of the serum; in some cases the gelling occurs in less than ten minutes.

extracellular, atypical Donovan bodies were observed in smears from the lesion.

September 26, the graft ulcer was healed completely. Slight swelling of the left inguinal gland was still present. The formol-gel test was twelve hours positive, which was the first time this was noticed.

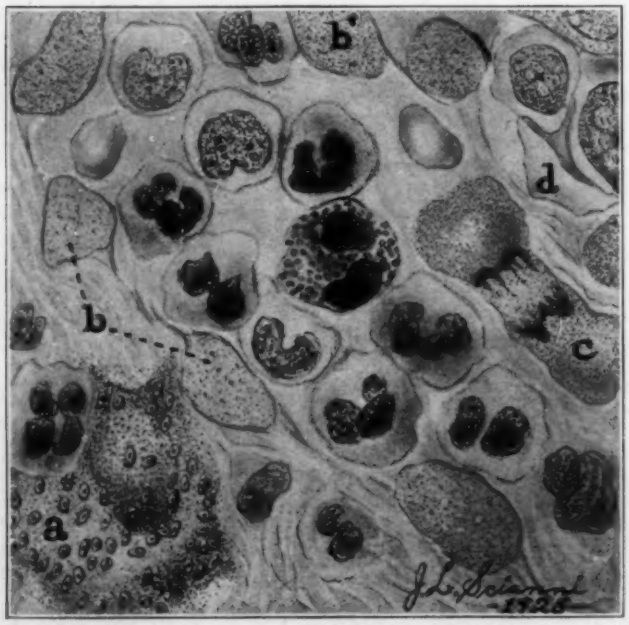

Fig. 2.—Characteristic cellular elements seen in biopsy from spontaneous case of granuloma inguinale (S. H.): *a*, swollen, large mononuclear leukocyte containing Donovan bodies; *b*, *b'*, endothelial cells of capillary wall; *c*, one undergoing mitosis; *d*, swollen endothelial cell of capillary wall compressing red blood cell in lumen.

October 3, direct smears of aspirated juice from the left inguinal gland were negative for Donovan bodies. Sterile cultures were obtained.

October 10, the formol-gel test was twenty-four hours positive.

October 17, the site of the transplant showed an active process. It was crusted with a small amount of dried secretion, which, when removed, revealed a small amount of grayish, purulent material. A pure culture of Donovan bodies on Sabouraud's medium was obtained. The organism agglutinated in the patient's own serum, 1:80 dilution. Antigen made of this organism gave positive allergic reaction in a spontaneous case (A. K.). The formol-gel test was forty-eight hours positive. Typical intracellular Donovan bodies were observed in smears from the lesion.

October 20, the formol-gel test was thirty-six hours positive and typical Donovan bodies were observed in smears from the lesion.

October 24, the new ulcer was granulomatous and raised above the level of the adjacent skin. It was itching, oozed thin, sanguinolent fluid, and was painless. A pure culture of Donovan bodies was obtained (fig. 7). The formol-gel test was thirty-six hours positive. Typical Donovan bodies were observed in smears from the lesion (fig. 6).

October 31, the ulcer was progressive. A positive culture of Donovan bodies was obtained. The formol-gel test was twenty-four hours positive.

November 7, the ulcer was beefy red and distinctly granulomatous. A positive culture of Donovan bodies was obtained. The formol-gel test was twenty-four hours positive.

December 4, the ulcer was progressive and measured 3 by 1 cm. A biopsy was done (fig. 5). Antimony and potassium tartrate treatment was begun (fig. 4).

December 21, the ulcer was completely healed (fig. 8). Eight doses of 1 per cent antimony and potassium tartrate, amounting to 52 cc., were given. Antigen made from culture in a spontaneous case (E. S.) gave a negative skin reaction.

On the eighth day after implantation the graft had autolyzed and at its site was an ulcer. On the twenty-sixth day, this ulcer had healed completely, leaving a slightly indurated area.

On the forty-seventh day, exactly three weeks after the graft ulcer had healed, the same area was for the first time covered by a slough and oozed a small amount of grayish, purulent material, smears of which contained typical, intracellular Donovan bodies. Pure cultures of Donovan bodies resembling in all known details those cultivated from the eight spontaneous cases were obtained

On the fifty-fourth day, the ulcer was granulomatous, raised above the adjacent skin margin, oozing thin, sanguinolent fluid, and was painless, but caused slight itching.

The sixty-eighth day the ulcer was progressive, beefy red, and granulomatous.

The ninety-fifth day, the ulcer was 3 by 1 cm. and clinically resembled the typical lesions of spontaneous cases (fig. 4). A biopsy section at this time revealed the characteristic histopathologic change of granuloma inguinale (fig. 5). Characteristic Donovan bodies (fig. 6) were found repeatedly in smears from this ulcer. Four pure cultures of the same organism (fig. 7) were obtained and agglutinated in the patient's serum up to 1:80. The formol-gel test, negative before and after implanting the graft, became positive for the first time in twelve hours on the twenty-sixth day after the graft ulcer had healed completely, and remained so with time fluctuations throughout the experimental period of 113 days. Eight doses of 1 per cent antimony and potassium tartrate, amounting to 53 cc., were administered intravenously between the ninety-fifth and the one hundred and thirteenth days, completely healing the ulcer, which has remained so to date (fig. 8). No other treatment was used.

BACTERIOLOGIC STUDIES

Cultural Experiments.—Donovan bodies were cultivated in pure cultures from eight spontaneous cases and the experimentally transmitted case. They were also regained from a second patient, mentioned below, into whom they were injected. They grew best on

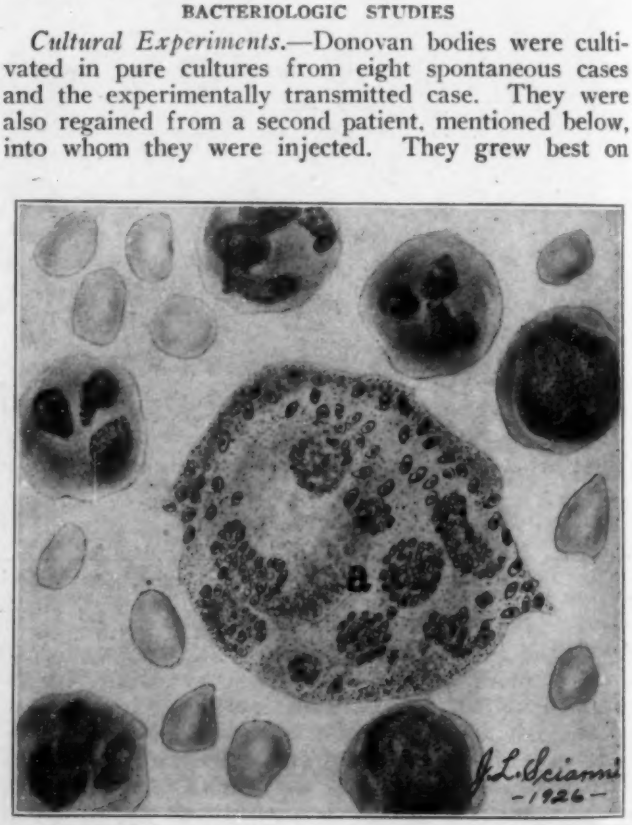

Fig. 3.—Caracteristic cellular elements seen in exudate of spontaneous case of granuloma inguinale (S. H.): *a*, swollen, large mononuclear leukocyte containing Donovan bodies, scattered and in compact groups.

Sabouraud's medium as small, translucent, rounded, domelike colonies with smooth margins, from 0.5 to 2 mm. in diameter. After twenty-four hours the color of the surface colonies gradually progressed from translucence to opaqueness to grayish brown. Body

temperature favored the most rapid growth. However, good growth was observed at room temperature.

On Sabouraud's medium a few surface colonies were submerged, and growth occurred anaerobically. Subcultures grew well on blood serum, nutrient agar, blood agar, sterile guinea-pig's kidney in Sabouraud's medium

Fig. 4.—Experimentally transmitted case of granuloma inguinale (S): *A*, lesion in right inguinal region; *B*, lesion in greater detail. The patient also had a right and left inguinal hernia.

and Lemco agar. Gas developed in anaerobic kidney culture on Sabouraud's medium. Methemoglobin developed around colonies on blood agar plates. No demonstrable growth occurred on gypsum blocks partially immersed in water. In liquid medium, subcultures grew well in plain broth, inulin, litmus milk, maltose, saccharose, dextrose, lactose, mannite, ascitic fluid and whole blood. The inulin, maltose and lactose remain unchanged. Acid was formed in litmus milk, dextrose and mannite. The milk was coagulated. The supernatant fluid of the broth cultures remained clear for several days except for grayish, discrete, floccular masses along the side and on the bottom of the test tube. Growth on lead acetate agar produced no reduction. Gelatin was not liquefied. A 1:1,000 dilution of gentian violet in broth inhibited growth. This inhibitory action suggested the use of this dye in treatment. This was tried, with the result as stated in the table. One per cent antimony and potassium tartrate diluted to 1:16 with whole blood inhibited but did not stop growth. Although the p_H range was not determined, growth did not occur on medium with p_H 4. Growth in whole blood from the spontaneous case (A. L.) occurred as large, grayish flocculi along the surface of the clot, which was suspended in clear serum. Similar cultures in whole blood from white persons, used as controls, gave no such flocculi.

Morphologic Examination.—The cultivated organism was pleomorphic, coccoid to bacillary in shape, nonmotile, nonsporulating, from 0.5 to 2 microns in diameter, gram negative, and stained readily with Wright's stain. Primary cultures, vitally stained with brilliant cresyl blue, suspended in 0.85 per cent saline solution, showed zooglea matrix, embedded coccoid forms and numerous, unequal tetrad grouping. The impression was obtained, from a study of the vitally stained organism, that many of the coccoid bodies multiplied in a line assuming a bacillary form, some of which would swell into large, oval bodies 3 or 4 microns in diameter. The coccoid form embedded in gelatinous nongranular matrix was the most constant, and those just mentioned were inconstant findings. The anaerobically grown organism was generally larger than the one grown aerobically. The organism grown on Lemco medium was oval to bacillary in form and showed the most marked variation in size. Threadlike filaments were observed in cultures on this medium.

Inoculation Tests.—One cubic centimeter suspension in saline solution of a fourteen day culture of an organism obtained from the spontaneous case (A. L.) was injected subcutaneously into the inguinal region of a colored man. Death occurred fourteen days later from carcinoma of the liver. There was no visible reaction at the site of the injection.

A 1 cc. suspension in saline solution of a forty-eight hour subculture of an organism obtained from the spontaneous case (A. L.) was injected subcutaneously into the groin of a guinea-pig. No visible reaction occurred.

A 2 cc. suspension in broth of a forty-eight hour primary culture from an experimental case (S.) was injected into the right groin of a colored girl, aged 17, who had a negative formol-gel test and was being treated for myelitis. The site of injection was sealed with collodion. An abscess developed and ruptured spontaneously at the site of the injection five days later, and on the seventh day a large core was removed. Spontaneous healing followed and was complete on the sixteenth day. The formol-gel test was positive in seventy-two hours on the ninth day. Smears from the exudate contained 10 per cent large mononuclears and 90 per cent polymorphonuclear cells. Coccoid bodies

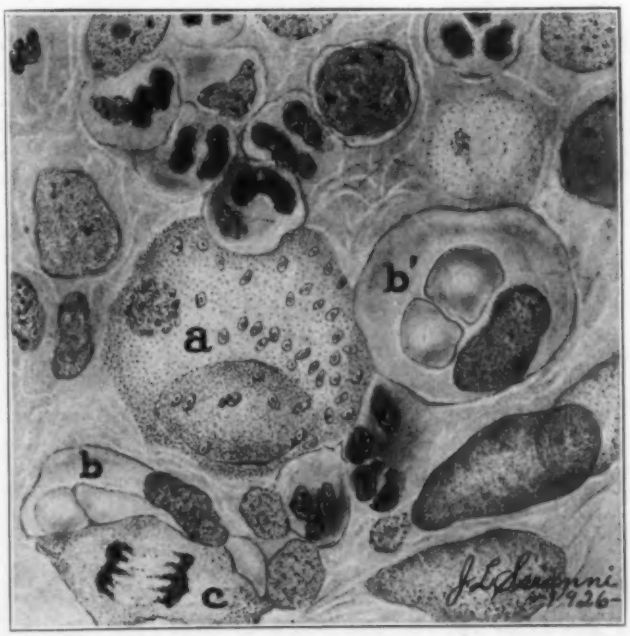

Fig. 5.—Characteristic cellular elements seen in biopsy from experimentally transmitted case of granuloma inguinale, as shown in figure 4: *a*, swollen, large mononuclear leukocyte containing Donovan bodies, scattered and in compact groups; *b*, *b'*, swollen endothelial cells of capillary wall compressing red blood cells in lumina; *c*, endothelial cell of capillary wall undergoing mitosis.

resembling the Donovan bodies were present in the smear from the abscess. Pure cultures resembling the organism were obtained. Skin sensitiveness was mani-

fested to antigens made from cultivated Donovan bodies from the spontaneous case (A. K.) within twenty-four hours.

SUMMARY AND COMMENT

The study reported in this paper tends to prove that the Donovan body is the cause of granuloma inguinale

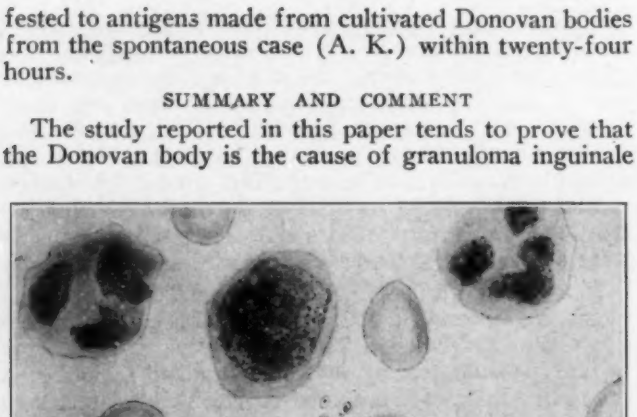

Fig. 6.—Characteristic cellular elements seen in exudate from experimentally transmitted case of granuloma inguinale shown in figure 4: *a*, swollen large mononuclear leukocyte containing Donovan bodies, scattered and in compact groups; *b*, extracellular Donovan bodies, single, in pairs and in tetrads.

by fulfilling the generally accepted criteria of specificity first stated by Koch. First, the organism was demonstrated in the lesion in fourteen out of fifteen spontaneous cases. Second, it was obtained in pure culture in eight of these fifteen cases. Third, a tissue graft from a spontaneous case in which Donovan bodies were demonstrated and from which they were isolated in pure culture reproduced the disease in an individual not previously exposed in any way to the possibility of spontaneously contracting this disease. Fourth, pure culture of the Donovan body was again obtained from this experimental lesion. And, further, antibody production against the cultivated Donovan body was demonstrated by the presence of agglutinins, precipitins, globulin changes and skin sensitiveness in the spontaneous and experimental cases.

A suitable antigen was made after the Hitchcock [12] method from subcultures of the Donovan bodies obtained from two spontaneous cases and one experimental case, and was used to demonstrate complement fixation, presence of precipitin and skin sensitiveness. Others have used antigens obtained from lesion scrapings. Frei,[13] in 1925, referred to skin tests made on patients having granulomatous lesions in whom he obtained positive skin reaction with an antigen obtained from lesion scrapings.

The formol-gel test was positive in all the spontaneous and experimental cases here reported. The reason for its appearance in granuloma inguinale is that a disturbance in the blood globulin has occurred. Foulger [14] studied the chemical nature of the action of formaldehyde on blood serum and concluded that gel production was due either to increased euglobulins and pseudoglobulin or to a tending toward plasma protein saturation. No claim is made that it is a specific test for granuloma inguinale but that it gives useful information concerning the progress of the disease.

The period of incubation appears to be rather long. An active lesion did not appear until the forty-seventh day in tissue rendered susceptible by trauma and tissue transplant in the experimental case; therefore, experimental injection of cultivated organisms should be observed several months before conclusions are warranted. Susceptibility to granuloma inguinale infection is actual if the information from our four spontaneous cases is reliable. Many exposures by coitus failed to transmit the disease to other individuals, both in the males and females. However, transmission of the infectious agent is stated by Castellani [1] to occur by sexual intercourse. Further, it is of interest to note that all authentic cases thus far reported have occurred in the negroid race, suggesting a racial predisposition.

Classification of the organism that we have cultivated and called the Donovan body is left for further study. The name suggested by Aragao and Vianna,[3] of *Calymmatobacterium granulomatis*, is a better term than Donovan bodies, because of the suggested morphology.

The experimental lesion afforded an opportunity to determine whether the tissue change in the lesion of granuloma inguinale was specific. The swollen hyperplastic endothelium of the capillaries, in zones in which there are numerous large, swollen, mononuclear cells filled with Donovan bodies, is characteristic enough for diagnosis. The slight necrosis that occurs in granuloma

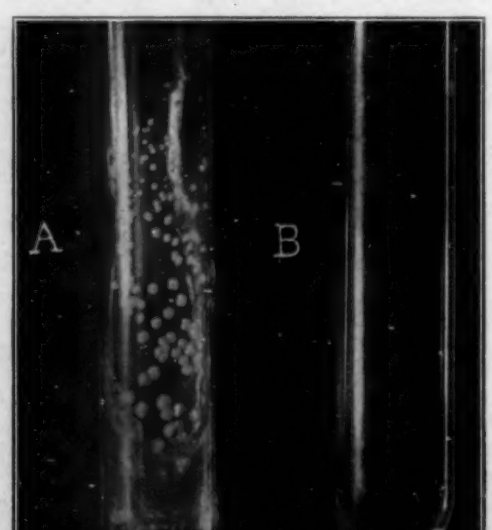

Fig. 7.—Pure culture of Donovan bodies isolated from experimentally transmitted case of granuloma inguinale shown in figure 4: *A*, aerobic, and *B*, anaerobic colonies.

inguinale may easily be accounted for by the swollen endothelium diminishing nutrition passing to the surrounding cells. The endothelial cells and large mononuclear cells swell relatively to the same proportions,

12. Hitchcock, C. H.: Serologic Relationships Among and Between the Streptococci and Pneumococci, J. Exper. Med. **41**: 13 (Jan.) 1925.
13. Frei, W.: Eine neue Hautreaktion bei Lymphogranuloma inguinale, Klin. Wchnschr. **4**: 2148 (Nov. 5) 1925.
14. Foulger, J. H.: The Action of Formaldehyde on Blood Serum. M. Bull. University of Cincinnati **3**: 36, 1925.

and similar swelling does not occur in the polymorphonuclears, plasma, fibroblasts and lymphocytes that are found in these zones. One field, showing a small capillary with two mitotic figures in its hyperplastic endothelial lining, suggests the source of the large mononuclear cells found so abundantly in the exudate. The harmful influence of the Donovan body in the mononuclear cell is unlike the influence of such organisms as the staphylococcus, *Bacillus tuberculosis,* or *Spirochaeta pallida.* Though the cells may be filled with adult size Donovan bodies, the nucleus shows no toxic effect from their presence, as evidenced by maintaining its normal staining reaction and morphology.

CONCLUSIONS

1. This is the first reported instance of successful experimental transmission of granuloma inguinale from one individual to another.
2. Our data support the belief that the Donovan body is the cause of granuloma inguinale and that it is a bacterium unrelated to the Friedländer group of organisms.
3. Repeated exposure of normal individuals through coitus to those suffering with granuloma inguinale without their contracting the disease suggests that an actual break in the skin surface is necessary for successful inoculation or that the organism is infective only for susceptible individuals.
4. The growth of the Donovan body in rather low dilutions of antimony and potassium tartrate may indicate that the action of the drug within the body may be indirect rather than direct.
5. The blood globulins are disturbed either qualitatively or quantitatively, or both, in granuloma inguinale. The disturbance may be determined by the formol-gel test.
6. Brilliant cresyl blue dye dissolved in physiologic sodium chloride solution is a rapid and satisfactory stain for Donovan bodies when used without fixation and dehydration.
7. Gentian violet given intravenously was found to inhibit the progress of the disease. However, it is much less effective than antimony and potassium tartrate.

ABSTRACT OF DISCUSSION

DR. KENNETH M. LYNCH, Dallas, Texas: The fulfilment of Koch's law by the production of a disease through transplantation of tissue, even though the same organism could be recovered from the original and the experimental diseases, may be questioned. It is conceivable that the transplanted tissue might have carried another organism, itself not recoverable by the methods used. I do not intend to question the relation of Donovan's organism to granuloma inguinale but to point out the weakness in this chain of evidence. Dr. McIntosh's effort to produce the disease experimentally, this time by inoculation of a culture, resulted in an abscess instead of a granuloma. That is also my experience in similar experiments. If the organism from culture does not produce the same kind of disease as from culture, it is probably not the same organism. I am in doubt whether any one has cultured the Donovan organism or the causative factor of granuloma inguinale. From my own observation of the Donovan organism I have not been satisfied to class it with *Bacillus mucosus-capsulatus,* and Dr. McIntosh's production of a granuloma by transplantation of tissue and an abscess by inoculation of his culture accentuates this uncertainty. There are certain considerations in the morphology of Donovan's organism and the reaction it produces which lead me to expect that we may come to look on it as a yeastlike body. While it is true that most of the records concern negroes, there are recorded cases in white persons. My first recorded case, in 1921, was in a white man, and I believe that Dr. Howard Fox reported two white cases this morning. I have read that it is not uncommon in the Chinese. That it is transmitted by sexual intercourse, like syphilis, I doubt. It is not a mucous surface infection. The usual location is away from the more intimate parts of the generative apparatus. My patients have usually given a history of a pimple or something of that nature which they scratched. In one of my recorded cases, the disease appeared to be superimposed on an ordinary suppurating gonorrheal bubo after it was opened with the knife. It is a disease mainly, if not entirely, of warm countries, of a site usually warm and moist, and of dirty people, conditions favoring accidental fungus or similar infections.

DR. SAMUEL M. PECK, New York: In our cultures we have produced organisms that are exactly like the organisms Dr. McIntosh has shown in scrapings from the lesion. In young cultures, from 24 to 48 hours old, the organism is remarkably pleomorphic, showing cocoid as well as bacillary forms. We have produced in a rabbit a lesion that was

Fig. 8.—Experimentally transmitted case of granuloma inguinale (S): *A,* lesion in right inguinal region shown in figure 4, now healed after specific treatment with antimony and potassium tartrate.

clinically comparable to the human cases and on section showed the typical organisms in the large mononuclear cells. Donovan described organisms in large epithelial cells which he classified as a gregarian order of sporozoa. We all agree that the organisms in sections are found in large mononuclear cells which may be of endothelial origin but surely are not epithelial cells. Unless Donovan was mistaken in his nomenclature, he was probably describing something else. However, some of the forms that the organisms assume in the sections correspond quite closely to his description. We have called our organism *Bacillus venereogranulomatis* and proved its etiologic rôle by satisfying Koch's postulates, positive complement fixation, allergic reactions, and vaccine treatment. Agglutination tests were difficult to obtain because of the fatty substances in the organism which interfered with our reactions. I have recently seen a case of granuloma inguinale in a white woman, which I believe is the first reported. She finally developed a typical epithelioma in the lesion.

DR. J. A. MCINTOSH, Memphis, Tenn.: Regarding the tissue transplant, we desired to establish the period of incubation of the disease so as to know how long to wait on injected cultures. The period of incubation was forty-seven

days. Regarding the white cases, it seems that sufficient proof of diagnosis is lacking in those that have been reported. The organism is pleomorphic when placed outside the lesion, as stated by Dr. Peck. Transmission doubtless is not by intercourse, and that it may be engrafted into other lesions seems probable.

RÔLE OF ILIOLUMBAR LIGAMENTS IN LOW BACK STRAINS*

C. L. LOWMAN, M.D.
LOS ANGELES

The localization of pain and sensitiveness to pressure in the small triangular space formed by the midline of the last two lumbar vertebrae and the posterior portion of the iliac crest in many cases of back strain has led us to a more careful study of this area.

In patients, especially those whose occupations or avocations require frequent rotation of the column, such as shoveling or running hoisting machinery, in which the right arm constantly reaches forward to pull levers, and in playing golf, the discovery of a point of great tenderness in this triangle is quite common. It is especially marked along the line of the iliolumbar ligaments on one or both sides, and worse at the point of attachment of this ligament to the ilium. We have been struck with the fact that this occurs particularly in patients with a loose sacro-iliac joint, in cases of spondylolisthesis, and in patients in whom roentgen ray demonstrates one or both sacrolumbar interarticular processes to be crescentic or flattened, as pointed out by Goldthwait.

Roentgenographic studies in many of these cases show definite evidence of marked increase in pull on these iliolumbar ligaments, in that areas of periostitis, with production of roughening and occasional spur formation, occur at the points of their insertion to the crest and lateral process. An occasional patient will be

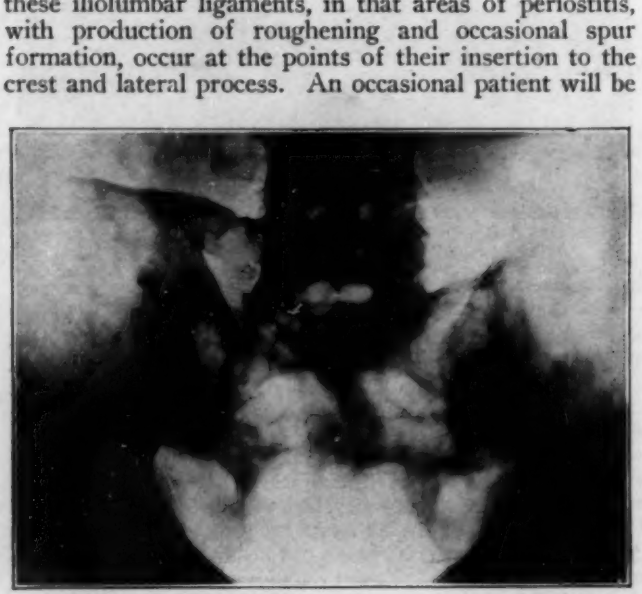

Fig. 1.—Complete calcification of both upper fasciculi of iliolumbar ligament, clear in the original roentgenogram, but not so much so in this reproduction. Courtesy of Dr. G. E. Henschen of Sherman, Texas.

seen in whom partial or complete calcification of this ligament has taken place; in some, at least, it is so thickened and increased in density as to cast a very decided shadow in the roentgenogram, as shown in the accompanying illustration.

* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

Further evidence of the degree of tension and stress in these ligaments is shown by the structual changes in the lateral processes of the fifth lumbar vertebra to which the inner ends are attached. The line of direction of pull is indicated often by the upward flare of the processes in patients with deep set sacrums (and there is also probably change of direction in the antero-posterior plane, depending on the position of the lower

Fig. 2.—Mild thickening of iliolumbars, showing in the roentgenogram moderate calcification.

lumbar vertebra, as in spondylolisthesis). Although this cannot be shown in roentgenographic studies, the observation of changes in skeletal remains would seem to indicate it. This would also naturally result from the operation of the law of structure related to function and would indicate postural strain on stress here the same as the analogous situation in the foot, when tension on the plantar ligaments produces spur formation on the os calcis. The amount of spur formation, however, is not necessarily directly proportional to the degree of pain. I also find that this is true in the foot, for there may be great pain with very little if any spur formation or thickening. I feel that a long continued low degree of tension might produce thickening and periosteal changes with spur formation of considerable extent without giving rise to disturbing symptoms.

The toxic condition of the blood stream also undoubtedly plays a considerable rôle in this regard, and in those with the so-called arthritic diathesis there is great probability of calcification taking place in this locality as in others.

If we consider the anatomic arrangement of this pair of ligaments, we note that their function is to act for lateral stabilization of the column in the midline. When the sacro-iliac ligaments are intact and the integrity of the pelvic ring is secure, the weight of the spinal column and trunk will be completely supported on the sacrum. This ligament is fan shaped and has, usually, three main fasciculi—one band directly outward from the lateral process of the fifth to a position on the

adjacent crest of the ilium; another passing downward, outward and slightly backward, to be inserted broadly into the roughened area along the inner upper surface of the overlapping posterior end of the ilium, and a third from the lateral process of the fourth lumbar vertebra, inserted into the first band between the fifth and the ilium.

Whenever a laxity occurs in the sacro-iliac ligaments enough to allow sagging of the sacrum there must occur increased tension on all other structures involved in supporting or stabilizing the spinal column. Under such circumstances the pair of iliolumbar ligaments act as a suspensory hammock, slinging the column between the ilia, the line of stress passing through the ligament of one side, through the lateral process and the spinal arches to the opposite process and ligament. This stress would tend to force the ilia toward each other, and because of the wedge shape of the slipping sacrum this is what occurs when the integrity of the pelvic ring is disturbed by the loosening of the sacro-iliac joints. If the pressure is asymmetrical, this pull is undoubtedly one of the factors in causing a rotation of an ilium on the femoral head and assists in producing the pelvic distortion so easily demonstrated in this condition if measurements are taken in the standing and sitting as well as the lying position, for comparison, and, similarly, if roentgenograms taken in similar positions are compared with one another, and are checked with the measurements and clinical examinations.

In lateral tilting of the pelvis, increased pull would occur on the iliolumbar ligament on the side toward which the tilt occurs, because of the body list away from the tilt in the effort to balance. If there is any anteroposterior deviation, a twist strain would be added which would increase the stress of sacrolumbar ligaments.

In patients with a flattened crescentic sacrolumbar articulation which allowed forward slipping of one side of a fifth lumbar vertebra on the sacrum, the iliolumbar ligament of the opposite side would act as a tether or guy rope and would bear the brunt of the strain as the anterior vertebral ligaments become more stretched. This stress would be increased with a tendency to twist this ligament in direct proportion to the amount of inclination forward of the body of the fifth lumbar vertebra.

In patients with hollow back and spondylolisthesis or so-called flat sacrum, with increased anteroposterior sacrolumbar angle, it can readily be seen that the sacrum bears less weight and these ligaments must bear more because of their direct suspensory function.

In anomalous development of the lateral processes of the fifth lumbar vertebra, there would exist corresponding changes in the character of these ligaments as to width, length and direction; consequently, the adjustment in stabilizing the lumbar base would be asymmetrical, accounting for difference in stresses on the two sides.

CONCLUSION

We may conclude, then, that this pair of ligaments, aside from acting for lateral stabilization, are also suspensory in function, and in this capacity tend to act as a second line of defense in bearing the stress of body weight under the circumstances stated above. Hence, when there is evidenced irritation and symptoms of ligamentous strain in them, we are justified in looking for the cause in some alteration in sacrolumbar relations.

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ABSTRACT OF DISCUSSION

DR. EMIL S. GEIST, Minneapolis: Dr. Lowman has added another factor for us to consider as a treatment of pain in the lower part of the back. I have had shadows that I have been unable to interpret—the bands and spur formations on the back portion of the iliac crest. Orthopedic history shows that we are clutching at any ideas or processes that seem to help solve the low back problems. These procedures rank from physiotherapeutic means to extensive surgical operations designed to remove offending bones or to fuse them.

DR. RALPH K. GHORMLEY, Boston: I remember an article by Dr. Doub of Detroit on this question in which he reported twenty consecutive cases showing calcification of the iliolumbar ligaments. His theory is that most of them were due to arthritis. In fifteen of these twenty cases, arthritic changes were demonstrated. I think it is a point well taken by Dr. Lowman that this ligament is of great importance in the low back strain cases, and it seems to me that it is up to us to go on in this way, finding other such factors, and maybe some day we can put together a plausible theory for the variations that come in the low back strains which at the present time are so confusing.

DR. C. A. PARKER, Chicago: It is very late to talk about such subjects as low back strains and the interpretation of the roentgenograms, but I was considerably enlightened yesterday afternoon in the meeting of the Railway Surgeons by an article by William Bohart of Chicago on this subject, and it was based on this: In the Belt Line Railway of Chicago, a railroad about 20 miles long, with 400 miles of switching track, they have lately examined the spine by roentgen ray, anteroposteriorly and laterally, of every new applicant, about 400 men, whose business it is to ride on the cars to the top of a very high dump and then jump on the car and steer it down an incline and shoot onto a sidetrack this way or that way. Every once in a while the car does not "shoot," but the men do. They fall off and hurt themselves. They have the records showing the variations, the changes in the iliolumbar and sacro-iliac regions, and all the variations that one might get in 400 persons. Including two or three compressed vertebrae, all of these men claim that they are "symptomless"; in fact, the paper was on "The Symptomless Spine," which was interesting.

DR. ARTHUR STEINDLER, Iowa City: Dr. Lowman has brought out a very important point in the symptomatology of low back strain which I do not think is quite sufficiently appreciated. We have been paying attention to the condition of the iliolumbar ligament for some time past, and we believe that we have been able to recognize it in the clinical syndrome. A spine with an increased forward shearing stress may show the iliolumbar ligament distinctly tender in the manner which Dr. Lowman has described. The diagnosis of iliolumbar ligamentous strain can be substantiated by the signs of alleviation and of aggravation which accompany any ligamentous injury in the body. The patient will have to bend to one side to get relief and have to bend to the other side to show accentuation of the symptom. And I am glad Dr. Lowman pointed out the incongruity of the articulation between the fifth lumbar vertebrae and the sacrum which he found in some of these cases. In some cases most of the rotation is taken up by this one vertebra, this one articulation, rather. I have always believed that until we have exhausted the analysis of low back pain from the standpoint of mechanics, which is about the only thing we understand well at this time, we have no reason to go further for any explanation of the traumatic low back pain.

Nurses in Armenia.—The Edith Winchester School of Nursing attached to the Near East Relief Orphanage at Alexandropol, Armenia, recently held graduating exercises and for the first time presented pins. There are twenty-five graduates of this school in government hospitals, in the institute of research on tropical diseases and in the university hospital at Erivan.

THYROID HYPERTROPHY AND PREGNANCY

WITH DATA ON BASAL METABOLISM AND THE CALCIUM CONTENT OF THE BLOOD *

CARL HENRY DAVIS, M.D.
MILWAUKEE

It is generally agreed that thyroid hypertrophy in women either starts as a congenital defect or begins at puberty or during pregnancy. These are very old observations. In Charpentier's Cyclopedia of Obstetrics and Gynecology, the American edition of which was published in 1887, there is a two page discussion of goiter and its influence on pregnancy. Under treatment, he says: "As goiter is generally benign during pregnancy, we should resort to general measures and internal treatment. Forbid the patient to nurse and give iodine."

Moderate hypertrophy of the thyroid has been accepted as an incident of pregnancy, and until Marine's work most of us gave it little or no thought. Approximately 41 per cent of the last 520 patients I have examined in early pregnancy had some hypertrophy of the thyroid. While the hypertrophy that occurs during pregnancy is usually slight and, as a rule, transient, eight patients in this group have returned with typical symptoms of toxic goiter within fourteen months after delivery. Thus far two of these have required subtotal thyroidectomies. Since most of my patients return to their family physicians for all general conditions, it is probable that some others became toxic.

Marine [1] states that there is always some decrease in the iodine content of the thyroid during pregnancy and urges the giving of iodine to prevent the hypertrophy that occurs so commonly in goiter areas. He has also found that iodine is present only in traces in the infant's thyroid at birth unless the mother has been given iodine, when it is enormously increased. The use of iodine by the pregnant woman is said to prevent congenital goiter. The only infants with congenital goiters in my last 500 deliveries were premature twins. Their mother had not taken iodine. The surviving twin, a girl, still has a definite enlargement of the thyroid. During a second pregnancy last year, this patient took small doses of iodine, and her last baby has a normal thyroid. Following the advice of Marine, I have given iodine in some form to most of the patients under prenatal care since 1920, but have had them stop its use with delivery unless they were remaining under the observation of some physician. The eight patients who developed toxic symptoms had taken small doses of some iodine preparation during pregnancy, but none of them had continued with it after delivery. In each case the patient had an enlarged thyroid that probably started at puberty, but in no instance had hyperthyroidism been suspected before pregnancy. They seemed to feel better during pregnancy while taking the iodine, and it is possible that they would have benefited from small doses after delivery. Over thirty years have passed since Baumann of Freiburg discovered that iodine is a normal constituent of the thyroid, but we still know very little about the reasons for thyroid hypertrophy during pregnancy and give iodine empirically, not knowing the amount needed or the period required.

A review of the literature on the various problems pertaining to thyroid hypertrophy and pregnancy shows much conflicting information based on both clinical and laboratory investigations. Ward [2] reviewed the literature in 1909 and again in 1912. At that time, the interest in the thyroid was in regard to its possible relation to the toxemias of pregnancy. He concluded that failure of the gland to hypertrophy during pregnancy is probably followed by insufficient metabolism, and may result in various forms of toxemia. More recently, Fruhinsholz [3] reported four cases of pregnancy in patients with typical abortive myxedema, which impressed him by the constancy of renal disturbances. The first had slight albuminuria and eclampsia; the second, transient albuminuria; the third, albuminuria and "eclampsism," and the fourth, edema. On the other hand, Robinson [4] says that modern pathologic methods have revealed no connection between the thyroid or parathyroids and toxic albuminuria or eclampsia. Knaus [5] believes that the thyroid loses its function as an organ of internal secretion during pregnancy and that there is a hyperfunction of the hypophysis.

It is obvious that clinical observations, while very useful and important, must be backed up by laboratory evidence before we shall be able to explain satisfactorily the hypertrophy of the thyroid that occurs so regularly among pregnant women who live in goiter areas. With the development of basal metabolic determinations as a means of estimating thyroid function, it seemed that at last we had a fairly accurate means of determining the influence of pregnancy on the thyroid. The series of presumably normal pregnant women studied by Baer,[6] in 1921, and that of Cornell,[7] in 1923, seemed to indicate that all women show an increased metabolic rate at the end of pregnancy, but they did not agree as regards the drop during the puerperium. Baer's patients all returned to normal limits within eleven days after delivery, whereas the average postpartum rate in the cases studied by Cornell was + 21.5 per cent. The observations of H. K. and H. F. Root [8] and of Sandiford and Wheeler,[9] each on a single patient, and the series of normal obstetric patients studied by Rowe, Alcott and Mortimer,[10] while indicating an increasing rate toward the end of gestation, suggested to me that further metabolic studies might show that the rather high readings reported by Baer and Cornell were due to an iodine deficiency. The reason for this is that they were made on women who were not taking any iodine during pregnancy, although they lived in a goiter district. A review of the literature has not revealed any metabolism studies on women who were taking iodine as a prophylactic measure during pregnancy. It is also evident that most of the high readings have been made on women

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

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10. Rowe, A. W.; Alcott, M.D., and Mortimer, E.: Changes in Basal Metabolic Rate in Pregnancy, Am. J. Physiol. **71**: 667 (Feb.) 1925.

living in districts in which goiter is prevalent. Further investigation, therefore, seemed to be needed, and the present study was started.

Most investigators are agreed that it is the parathyroid rather than the thyroid that governs calcium metabolism, but since we were also planning a study of calcium in pregnancy it was decided to make both basal metabolism and calcium determinations on the same group of patients. In each case the blood for calcium was obtained immediately after the metabolic rate was taken. With the exception of a few tests the work was done in the research laboratory at Columbia Hospital by the chemists, Misses Perry and Buttles. Since only private patients were studied, it should be remembered that better living conditions and a better balanced diet may account for higher calcium determinations than others have reported on clinic patients. The Roth modification of the Benedict type of respiratory apparatus with kymograph attachment for graphically

TABLE 1.—*Normal Pregnancy and Normal Thyroid at Term* *

Name and Age	Parity	Normal Weight, Lbs.	Period Tested	Weight, Lbs.	Metabolic Rate, %	Total Calcium, Mg.	Comment
F. C. 23	I	114	38 wks.	140	— 0.9	8.72	
			15 days	122	+ 0.2	10.04	Girl, 6 lbs. 14 oz.
V. R. 25	I	107	38 wks.	122½	— 3.0	15.88	
			12 days	105	+ 3.8	13.48	Girl, 6 lbs. 15½ oz.
M. H. 28	II	117	34 wks.	124½	+ 0.5	.....	
			38 wks.	126½	± 0.0	.....	
			11 days	111	— 3.8	11.75	Girl, 7 lbs. 12 oz.
E. E. 39	I	127	37 wks.	151	+ 1.0	9.6	
			9 days	137	— 5.9	10.68	Girl, 6 lbs. 14 oz.
G. N. 27	II	142	39 wks.	167	— 7.3	10.63	
			11 days	135	—21.1	11.96	Girl, 8 lbs. 9 oz.
L. L. 22	I	120	39 wks.	147	+13.5	9.02	Nervous about sick father
			12 days	127	— 3.7	10.00	Girl, 7 lbs. 1 oz.
K. S. 26	I	118	34 wks.	143	+ 8.1	8.4	Weight, 154½ lbs. at term
			12 days	134	+ 5.1	9.32	Boy, 7 lbs. 11 oz.
H. C. 32	I	100	34 wks.	114	+13.0	8.00	Weight, 121 lbs. at term
			15 days	103½	+ 9.6	9.32	Boy, 7 lbs. 11 oz.
M. E. 22	I	137	36 wks.	161	+ 4.3	9.00	
			10 days	148	+ 2.1	12.52	Boy, 7 lbs. 12 oz.

* These patients were given small doses of iodine during pregnancy.

recording the metabolic rate was used. The total calcium in milligrams per hundred cubic centimeters of blood serum was determined by the Clark method. The patients have been classified and grouped in a series of tables. The individual results are given as well as the averages, so that others may easily compare their examinations with ours.

NORMAL PREGNANCY AND NORMAL THYROIDS AT TERM

The basal metabolic rates are all practically within normal limits in the group of nine normal patients who took iodine in some form during the last months of pregnancy, as shown in table 1. Most of them began its use by the end of the first trimester. The average reading for the nine is + 2.4 per cent before delivery, which compares closely with the average of + 4.5 per cent on the thirteen normal patients in the study made by Stander and Peckham.[11] The maximum limits of — 7.3 to + 13.5 are similar also to theirs, which varied from — 8 to + 15. Baltimore is not in a goiter district, and it is probable that their patients received some iodine in their food and drink. The normal patients reported by Baer and Cornell lived in a goiter area and received no iodine during pregnancy. The average metabolic rate on the group of normal patients studied in Boston by Rowe, Alcott and Mortimer showed an increase toward the end of pregnancy and a fall after delivery, but their readings as well as those of Sandiford and Wheeler in Rochester and the Roots in Boston are

11. Stander, H. J., and Peckham, C. H.: Basal Metabolism in the Toxemias of Pregnancy, Bull. Johns Hopkins Hosp. 38: 227, 1926.

TABLE 2.—*Thyroid Hypertrophy; Normal Pregnancy; No Symptoms* *

Name and Age	Parity	Normal Weight, Lbs.	Period Tested	Weight, Lbs.	Metabolic Rate, %	Total Calcium, Mg.	Comment
J. C. 26	I	130	39 wks.	142½	+17.5	10.00	
			15 days	123½	+ 8.3	10.50	Girl, 7 lbs. 5 oz.
C. G. 23	I	124	36 wks.	147½	+14.5	9.00	Girl, 7 lbs. 3 oz.
			11 days	130	+62.0	9.68	Cause of high reading unknown
			15 wks.	126½	—11.1	.....	Condition normal
F. S. 29	II	150	39 wks.	167	+23.7	10.16	
			12 days	147	—10.0	9.20	Girl, 7 lbs. 5 oz.
V. L. 24	I	115	39 wks.	138	+18.6	9.00	
			13 days	116	+27.0	9.86	Baby died during labor; boy, 8 lbs. 10 oz.
R. B. 28	I	115	37 wks.	138	+27.0	8.80	Slight nervousness;
			13 days	115	— 0.1	10.70	girl, 7 lbs. 10 oz.
G. K. 25	II	105	38 wks.	125	+26.4	10.10	
			15 days	112	+ 2.1	10.44	Boy, 7 lbs.
D. G. 25	I	120	25 wks.	129½	+16.2	13.44	
			38 wks.	148	+24.0	9.48	
			13 days	120	+ 5.4	11.38	Boy, 8 lbs. 1½ oz.

* These patients all had some iodine during pregnancy.

within the normal limits. It is our belief at present that, if a woman with a normal thyroid takes sufficient iodine during the course of a normal pregnancy, her basal metabolic rate will remain within normal limits, although it may show a gradual increase during the last weeks of pregnancy.

TABLE 3.—*Normal Pregnancy and Thyroid Hypertrophy, Patients Believed to be of Hyperthyroid Type* *

Name and Age	Parity	Normal Weight, Lbs.	Period Tested	Weight, Lbs.	Metabolic Rate, %	Total Calcium, Mg.	Comment
M. C. 31	I	165	37 wks.	184	+36.4	8.80	
			11 days	161	+ 8.2	8.50	Girl, 7 lbs. 13 oz.
C. H. 25	I	112	36 wks.	129	+47.6	9.00	
			11 days	114	+ 5.6	10.50	Boy, 7 lbs. 9 oz.
E. F. 25	II	116	28 wks.	130	+18.6	10.00	Used no iodine
			39 wks.	149	+43.8	9.28	Very nervous
			11 days	124	+12.1	11.39	Left hospital; good condition; boy, 8 lbs. 12 oz.
V. P. 28	II	132	37 wks.	154	+31.8	9.76	Girl, 8 lbs.
			12 days	129	— 4.6	10.04	Left hospital; good condition
			4 mos.	116	+47.8	.....	Pulse 136; marked tremor; weakness
L. C. 28	I	132	38 wks.	150	+27.3	15.28	Used no iodine; pulse irregular and rapid
			12 days	127	+27.4	10.40	Left hospital in good condition; boy, 6 lbs. 12 oz.
McA. 26	I	116	37 wks.	135	+21.0	10.68	
			12 days	119½	+17.0	10.63	Boy, 6 lbs. 11 oz.
B. H. 35	II	98	26 wks.	106	+22.4	8.80	
			39 wks.	122	+21.0	9.50	Boy, 7 lbs. 6½ oz.
			12 days	101	+ 3.5	9.32	Cesarean section; highest temperature 99.8; good recovery
H. B. 25	I	130	38 wks.	149	+33.2	10.68	Moderate sized goiter
			12 days	129	+19.8	10.72	Girl, 7 lbs. 5½ oz.
B. H. 34	II	138	36 wks.	148	+28.0	10.10	Very nervous
			12 days	128	— 9.1	12.36	Girl, 6 lbs. 15 oz.

* Some of these patients had only slight hypertrophy of the thyroid.

THYROID HYPERTROPHY AND NORMAL PREGNANCY

The patients with normal pregnancy and thyroid hypertrophy with few if any symptoms of thyroid disease have been divided more or less arbitrarily into a group with no symptoms and another group that appeared clinically to be of the hyperthyroid type, as shown in tables 2 and 3. These patients were given

small doses of iodine during the greater part of pregnancy with the exception of two, who reported a circulatory upset and a feeling of discomfort in the neck after one or two tablets of iodostarine. It is possible that they could have taken iodine in some other form.

TABLE 4.—*Toxic Goiter Developing Clinically After Pregnancy**

Name and Age	Parity	Date of Labor	Normal Weight, Lbs.	Date of Test	Metabolic Weight, Lbs.	Metabolic Rate, %	Comment
L. F. 19	I	5/29/22	105	7/26/23	86	+115	Sent to bed; given triple bromides and compound solution of iodine, 5 drops three times a day
				8/25/23	85	+47	In hospital for operation
				8/28/23	85	+36	
				8/31/23	..	.....	Vessels ligated by C. A. Evans
				1/16/24	..	.....	Subtotal thyroidectomy by C. A. Evans
M. H. 29	I	8/ 2/22	127	3/ 3/23	107	+36.9	
				3/ 8/23	...	.....	Subtotal thyroidectomy by C. A. Evans
C. H. 25	I	1/23/23	116	5/16/23	102	+35.8	Rest, triple bromides and syrup of hydriodic acid; recovery in four months
				5/28/23	...	+22.6	
M. L. 21	I	5/ 4/25	105	10/15/25	97.5	+44.2	Recovery with rest and iodized salt
				2/25/26	114	— 1.7	Again pregnant and in good condition
V. P. 28	II	11/30/25	122	11/12/25	154	+31.8	Repeated from table 3
				12/11/25	129	— 4.6	
				3/22/26	116	+47.8	Now under observation

* These patients had iodine during pregnancy but none after delivery. In three milder cases, the patients recovered with rest, bromides and iodine.

The seven patients who had a moderate hypertrophy and no symptoms of thyroid disease took iodine. Their basal metabolic rate before term averaged + 22.1 per cent, and within an average of eleven days after delivery dropped to + 3.1 per cent. The group of nine patients who were classified as potentially hyperthyroid had an average metabolic rate of + 32.2 per cent before delivery and a later drop to + 8.9 per cent. One patient in the second group has already returned four months after delivery with exophthalmic goiter. None of these patients were given iodine after delivery.

PATIENTS WITH HISTORY OF TOXIC GOITER

Five patients who had been operated on for toxic goiter and two others who had received medical treatment for hyperthyroidism have been carried through pregnancy during the last six years without serious complications. The only one of this group to develop symptoms of hyperthyroidism during pregnancy or the puerperium was unable to take iodine in the form prescribed. With bromides and rest she made a satisfactory clinical recovery, but her metabolic rate was + 20, seven months after delivery. The only other test made on her since her operation four years ago was on April 20, 1922, and the basal rate was + 18.8. Tests have not been made on any of the others since delivery. My associate, Dr. Cron, recently confined a patient who had had a partial thyroidectomy in 1924. At that time she had a metabolic rate of + 35 per cent. She became very nervous and had a rapid pulse a few days before delivery, but the metabolic rate was only + 22. She had taken some iodine during pregnancy.

DEVELOPMENT OF HYPERTHYROIDISM AFTER PREGNANCY

Eight patients delivered within the last few years are known to have developed definite symptoms of toxic goiter within a year after delivery. One or more basal metabolic tests have been made on six of these women. One young woman, a secundipara, developed toxic symptoms when the baby was about 4 months old, but the reading (made four weeks later) was — 5.4 per cent, which raises a question as to the interpretation of her loss in weight, rapid pulse, tremor and nervousness. With plenty of rest, iodine, bromides and ultraviolet irradiation, she made a satisfactory recovery in eleven weeks. The other two patients with mild cases recovered in about the same length of time and thus far have remained well. The five more severe cases are shown in table 4. The first patient, Mrs. L. F., was in an automobile which was wrecked by a street car when the baby was a few days more than a year old. The shock of the accident precipitated an acute hyperthyroidism, which showed only moderate improvement after a month's medical treatment and rest in bed. Dr. Evans did a ligation and waited over four months before undertaking the subtotal thyroidectomy. Nervous and physical strain seemed to play an important part in the development of the hyperthyroid condition in every case. These patients all had some enlargement of the thyroid prior to pregnancy, and all had some iodine during pregnancy but none after delivery. It now seems important to keep the patients who are believed to be of the hyperthyroid type under observation for months after delivery, and probably to give them very small doses of iodine. Elimination of nervous strain and worry is more or less impossible, and economic conditions cause many of these women to work too hard.

TABLE 5.—*Patients with toxemia of Late Pregnancy**

Name, Age, and Parity	Normal Weight	Period Tested	Blood Pressure and Weight	Edema	Albumin	Metabolic Rate, %	Total Calcium, Mg.	Comment
E. G.† 23 I	106 lbs. B. P. 90 mm.	37 wks.	144/68 156 lbs.	++++	++	—32.09	.....	Delivered day of test by vaginal hysterotomy
		10 days	110/76 127 lbs.	0	0	— 3.15	.....	Thyroxin by mouth 3 times a day for three days
L. P.‡ 34 II	127 lbs. B. P. 130 mm.	30 wks.	120/76 166 lbs.	++	0	—10.9	12.4	Ultraviolet irradiation; thyroxin hypodermic; iodine
		10 days	120/74 132 lbs.	0	0	— 8.7	9.95	Weight 166 lbs. before delivery, blood pressure 150 mm., trace of albumin
I. B.§ 25 I	99 lbs. B. P. 118 mm.	33 wks.	148/90 121 lbs.	++	0	+ 5.9	9.2	Ultraviolet irradiation 1 mo., labor induced with bag
		9 days	124/86 101 lbs.	0	0	+13.6	8.1	Good recovery
M. H.# 25 I	87 lbs. B. P. 118 mm.	36 wks.	160/94 110 lbs.	0	++	+ 8.6	9.4	Condition did not improve, labor induced with bag
		14 days	128/84 96 lbs.	0	0	— 3.8	9.0	Good recovery, had ultraviolet treatment a month before symptoms

* These patients had some iodine during pregnancy.
† The baby, a boy, weighed 5 lbs. 4 oz.
‡ The baby, a boy, weighed 7 lbs. 15 oz.
§ The baby, a boy, weighed 7 lbs. 4½ oz.
# The baby, a girl, weighed 4 lbs. 15 oz.

TOXEMIA OF PREGNANCY

The metabolic determinations of four patients with toxemia of pregnancy are presented in table 5. The rates are all normal or slightly below normal. The first two cases suggested that patients with edema and little if any albumin might have hypothyroidism, but the third case showed a normal metabolic rate. The fourth patient had no edema but an increased blood pressure, with albumin and casts in the urine. Her

metabolic rate was normal, which does not compare with the average rate of +33 which Stander and Peckham found in a group of patients with nephritic toxemia.

TABLE 6.—*Toxic Adenoma with Pregnancy—Operation After Delivery* *

Name, Age, and Parity	Normal Weight, Lbs.	Date of Tests	Weight, Lbs.	Metabolic Rate, %	Total Calcium, Mg.	Comment
E. S.	138	1/ 6/25	144	21	....	Not pregnant
32		2/27/25	144	23	....	Not pregnant
II		10/15/25	154	23.6	15.2	Pregnant about 23 weeks
		1/29/26	168½	85.4	8.8	Given castor oil
		1/30/26	164	86.5	....	Pregnant 39 weeks
		2/10/26	143½	41.8	....	Delivered 2/5/26
		2/22/26	138	53.6	9.6	
		2/24/26	...	....	....	Subtotal thyroidectomy
		3/ 4/26	131	23.3	....	Condition satisfactory
		4/ 8/26	137	−13.7	....	Menstruating time of test

* This patient was taking compound solution of iodine, 5 drops three times a day, when first seen in October, 1925. This was reduced to one week each month. She was very nervous but had a pulse of 85 when the tests were made in January, 1926. The baby was continued at the breast after the thyroidectomy.

TOXIC ADENOMA AND PREGNANCY

Two patients with toxic adenoma of the thyroid have been under observation during the last two years. The first had the adenoma removed early in the fourth month of pregnancy and thereafter took a moderate amount of iodine. Her nervous symptoms improved rapidly after the operation. Since delivery, she has continued to take iodine and is in excellent health. Metabolic studies were not made on her prior to operation or during pregnancy.

The second patient had shown nervous symptoms from adenoma since her first pregnancy, which terminated with a macerated fetus in September, 1924. The physicians then in charge of her had a metabolic test in January and in February, 1925. For the sake of completeness, these are shown in table 6, giving her readings during pregnancy and since. A subtotal thyroidectomy was performed by Dr. Yates twenty days post partum, and the patient is now in excellent condition. As may be seen from the infant's record in the accompanying chart, nursing was kept up and the baby has continued to thrive on its mother's milk. Complementary feeding was stopped six days after the operation. This patient will continue to take small doses of the syrup of hydriodic acid for an indefinite period.

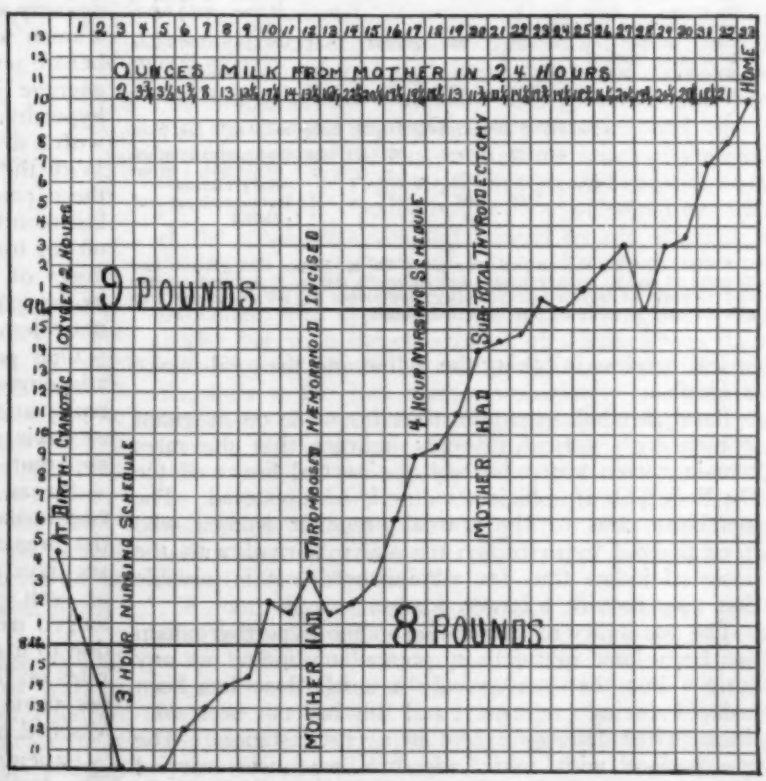
THYROID FUNCTION AND THE VOMITING OF PREGNANCY

Thus far, there has been no satisfactory explanation for some of the cases with prolonged vomiting of pregnancy. The records of the group of patients on whom the thyroid function has been studied by means of basal metabolism tests suggest that an abnormal thyroid function may have something to do with certain cases of prolonged nausea and vomiting. Through the courtesy of Dr. Carl Harper, fairly complete records on one such patient are shown in table 7. Further studies of this type will be made when possible. Observations suggest that patients with normal thyroids and normal metabolic rates respond quickly to treatment for nausea and with moderate care in diet have no more trouble. The use of iodine or thyroid extract may aid in the treatment of those with abnormal thyroids.

CALCIUM CONTENT OF THE BLOOD

Calcium determinations have been made on the blood of twenty-eight women before delivery and twenty-nine postpartum. A casual examination of the tables shows that there is no definite relation between the thyroid function as estimated by the basal metabolic rate and the milligrams of calcium in each hundred cubic centimeters of blood serum. This examination of pregnant women agrees with the observations of Castex and Schteingart,[12] who found no relation between thyroid function and the blood calcium in twenty-four nonpregnant patients. It should be noted that the three patients with toxemia of pregnancy had a lower calcium after delivery. The patient with toxic adenoma was below normal at the time of her thyroidectomy.

The average calcium determinations in twenty-four patients with uncomplicated pregnancy was 9.97 mg. before delivery and 10.5 mg. after delivery. These figures are within normal limits and a little higher than observers have reported from clinic patients. If the few very high figures were eliminated, the average of the others would more nearly compare with previous reports. However, these determinations were made on private patients, all of whom had ample food, and those who did not drink milk were asked to take calcium lactate.



Record of infant of mother described in table 6.

The average for the patients with thyroid hypertrophy is a little higher than the average of the patients

12. Castex, M. R., and Schteingart, M.: Calcemia and the Thyroid, Compt. rend. Soc. de biol. **93**: 1673 (Jan. 5) 1926; abstr. J. A. M. A. **86**: 988 (March 27) 1926.

with normal thyroids, but the number of observations does not warrant any conclusions.

It is believed that pregnant women should have a diet that is rich in calcium, and most of them are apparently benefited by taking calcium salts in addition. Ultraviolet irradiation and cod liver oil may aid in the calcium absorption, but thus far they appear to make little if any difference in the total blood calcium.

PROPHYLACTIC ADMINISTRATION OF IODINE

Marine, in 1917, pointed out that the administration of iodine during pregnancy would prevent the hypertrophy that occurred in such a large percentage of the women who live in goiter districts. Our observations confirm this. However, at present there is no method of estimating the iodine requirements of the pregnant woman. In practice, I have usually ordered double the dosage that would be administered as a prophylactic measure to the nonpregnant; but the average patient who has no evident enlargement of the thyroid is more

TABLE 7.—*Prolonged Vomiting of Pregnancy—Exophthalmic Goiter* *

	Metabolic Findings				
History	Dates	Weight	Pulse	Basal Metabolic Rate, %	Comment
A. C. N., aged 35, secundipara; last period 7/30/25; felt life 12/6/25; normal weight, 125 lbs.; seen in consultation with Dr. Carl Harper at Wisconsin General Hospital, Madison	9/31/25	In bed	110-120	+41	
	10/ 2/25	...	120-130	+36	
	11/27/25	...	110-115	+35	Iodostarine three times a day; compound solution of iodine not tolerated
	2/ 3/26	93	120-130	+84	Compound solution of iodine, 15 drops three times a day
	2/23/26	99	119	+81	Cardiac insufficiency
	Delivered prematurely 3/3/26; baby weighed 3 lbs. 9 oz.				
	3/11/26	In bed	92	+36	Compound solution of iodine, 5 drops every 4 hours
	4/ 5/26	103	92	+27	Dyspnea; dependent edema

* Sept. 25, 1926, the patient was given 500 cc. 10 per cent glucose and 20 units of insulin intravenously; September 28, 600 cc. 10 per cent glucose and 20 units of insulin intravenously; September 30, 500 cc. 10 per cent glucose and 25 units of insulin intravenously.

or less careless in taking the iodine and the total intake is small.

Basal metabolism studies thus far made on pregnant women with normal thyroids indicate that the rates remain within approximately the normal limits of the Du Bois table if sufficient iodine is administered. The metabolic rates of the normal pregnant women who have thyroid hypertrophy are above normal with the doses of iodine thus far administered. It is possible that they require a larger dosage.

The possibility of stimulating iodine hyperthyroidism has been kept in mind in prescribing iodine in any form. For that reason only a small dose has been ordered during pregnancy, and this has not been continued after delivery except in a few instances. The one patient with toxic adenoma who was carried through pregnancy before operative treatment had been taking 5 drops of compound solution of iodine (Lugol's solution) three times a day for a month before she reported to me. As she was apparently doing well, the treatment was continued but limited to one week a month. At the end of pregnancy, the only evidences of toxic goiter were nervousness and a high metabolic rate. The nervousness may have been due in part to the fact that her first baby was dead at birth. Patients with adenoma of the thyroid should be given iodine cautiously, if at all, before operative treatment is planned.

Four patients were unable to use iodine in the form administered. Recent experience suggests that it might have been tolerated in some other form. In general, our experience agrees with that of Strouse and Daly.[13] Patients with the clinical picture of functional thyroid disturbances during pregnancy are usually relieved by the administration of small doses of iodine. The use of iodine prevents hypertrophy of the thyroid during pregnancy and frequently reduces existing hypertrophy.

SUMMARY

Approximately 41 per cent of the last 520 women examined in early pregnancy had visible hypertrophy of the thyroid. Eight of these patients have returned with typical symptoms of toxic goiter within fourteen months after delivery. Small doses of iodine have been administered during pregnancy but none after delivery. No patient has returned with hyperthyroidism earlier than four months after delivery. Overwork, worry and other forms of nervous strain appear as contributing causes in each case.

The use of iodine during pregnancy by women who live in goiter districts is advocated as a prophylactic measure, unless they have adenoma of the thyroid. Iodine hyperthyroidism is recognized as a possibility, but thus far has not been observed. The average metabolic rate of nine women with normal thyroids at term was + 2.4 per cent. Their average after delivery was — 1.3 per cent. The average rate of seven women with simple hypertrophy was + 22.1 per cent before term, with a later drop to + 3.1 per cent. The average rate of nine women believed to be of the hyperthyroid type was + 32.2 per cent before delivery, with a drop eleven days post partum to + 8.9 per cent. With the exception of two patients in the last group, these patients took small doses of iodine during the last months of pregnancy. Patients previously operated on for toxic goiter are usually benefited by taking small doses of iodine during pregnancy. One such patient in the small group under observation apparently could not tolerate iodine.

One patient had a successful operation for toxic adenoma of the thyroid in the fourth month of pregnancy and later took iodine. One patient with a history of toxic adenoma took iodine during pregnancy with apparent benefit, although she had a metabolic rate of + 86 at term. She was successfully operated on twenty days post partum. The baby was continued at the breast, and complementary feedings were stopped six days after the operation. The subsequent history of both mother and infant is very satisfactory. Prolonged nausea and vomiting in one case was evidently due to a crisis of exophthalmic goiter. The metabolic rates on this patient are given. She had a rate of + 81 per cent ten days before delivery. Her nausea was lessened by the use of iodine.

Patients with toxemia of pregnancy had low readings. Three with edema and little or no albumin had lower readings than the single patient with high blood pressure, albumin and casts but no edema.

Comparative studies of the blood calcium and thyroid function, as indicated by the basal metabolic rate, show no relation between the milligrams of calcium in each hundred cubic centimeters of serum and the metabolic rate. The calcium determinations in twenty-four

13. Strouse, Solomon; and Daly, P. A.: Thyroid During Pregnancy, J. A. M. A. 84: 1798 (June 13) 1925.

women with uncomplicated pregnancy showed an average of 9.97 mg. before delivery and 10.5 eleven days post partum. Most of these women had taken calcium salts in addition to their food. The average for the patients with thyroid hypertrophy was slightly higher than the average for the women with normal thyroids, but a small series does not warrant conclusions. Three patients with toxemia of pregnancy showed a lowering of the calcium post partum, while the normal patients usually showed an apparent increase within eleven days. The use of cod liver oil and ultraviolet irradiation did not appear to increase the blood calcium in the few cases studied.

This is offered as a preliminary study. The observations thus far made suggest that, if a woman with a normal thyroid has sufficient iodine during the course of a normal pregnancy, her basal metabolic rate will remain within normal limits, although it may show a slight increase toward the end of pregnancy. Metabolic rates that are well above normal limits are believed to indicate abnormal function of the thyroid, usually of slight degree. The return to normal limits within eleven days post partum, while the rule, does not prove that the increased rate did not signify an abnormal function. These patients should be kept under medical observation for a long time after delivery. Many of the so-called neurotics of the past probably had disturbed thyroid function.

PREGNANCY COMPLICATING EXOPHTHALMIC GOITER

AND ADENOMATOUS GOITER WITH HYPERTHYROIDISM *

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The relationship, or rather the lack of relationship, between diseases of the thyroid and pregnancy is not well understood, and most of the literature on the subject is confusing and often misleading. This may be attributed, first, to a failure to differentiate clearly the various thyroid diseases, and, secondly, to carelessness in differentiating and excluding those syndromes which simulate thyroid disturbances, but are not due to them.

The various types of goiter, according to the classification of H. S. Plummer,[1] are: (1) diffuse colloid goiter of adolescence; (2) adenomatous goiter without hyperthyroidism; (3) adenomatous goiter with hyperthyroidism, and (4) exophthalmic goiter.

Marine and Kimball [2] have shown that diffuse colloid goiter and probably also adenomatous goiter without hyperthyroidism can be prevented in school children by administration of iodine. The development of these diseases is associated, as H. S. Plummer has pointed out, with potential, if not actual, hypothyroidism. The diffuse colloid goiter as such rarely becomes large and usually disappears spontaneously in the early twenties. The adenomatous type persists more frequently and shows a tendency to a slow, progressive, although intermittent, enlargement throughout life. In certain regions of Europe and Asia in which this condition has existed for generations, a considerable proportion of the population becomes cretinous. Fortunately, in this country we have as yet no such localities, but there is a definite tendency for an unknown but probably a major proportion of the adenomas to begin to hyperfunction after the patients are 40, or on an average of about seventeen years after the tumors are first observed. Only the hyperfunctioning adenomatous goiter and exophthalmic goiter will be discussed in this paper because the simple diffuse colloid goiter and the adenomatous goiter without hyperthyroidism, when associated with pregnancy, are largely problems of preventive medicine and the prophylactic use of iodine. A word of warning is, however, necessary: iodine should not be given in appreciable amounts to patients who have adenomatous goiter without hyperthyroidism, or to patients more than 25 years old who have diffuse colloid goiter, because of the danger of initiating hyperthyroidism; it is quite probable that the colloid goiter may contain nonpalpable adenomas. This warning is particularly pertinent in cases of pregnancy, as the improper use of iodine may force an otherwise avoidable operation at an inopportune time.

Exophthalmic goiter may be described as a constitutional disease,[3] apparently due to an excessive, probably an abnormal, secretion of an enlarged thyroid gland showing diffuse parenchymatous hypertrophy; it is characterized by a high basal metabolic rate with the resulting associated manifestations, with a peculiar nervous syndrome and usually exophthalmos, and with a tendency toward the gastro-intestinal crises of vomiting and diarrhea. In contrast, the symptoms of adenomatous goiter are those essentially due to a prolonged elevation of the basal metabolic rate caused by the presence in the tissues of an excess of a normal thyroid secretion; exophthalmos does not occur, and the symptoms are not associated with typical diffuse parenchymatous hypertrophy but with the occurrence of adenomatous tissue in the thyroid gland. A confusing factor in differential diagnosis is the fact that approximately one third of the cases of exophthalmic goiter occurring in this country are superimposed on preexisting adenomatous goiter; a causal relationship between the two conditions has not, however, been demonstrated. For further description of these diseases and their differential diagnosis, the reader is referred to other papers on the subject from this clinic.[4]

As both exophthalmic goiter and adenomatous goiter with hyperthyroidism are associated with an increase in the basal metabolic rate, and as this test is a valuable aid in their diagnosis, it is important to know what the basal metabolic rate is during the course of normal pregnancy. This subject has recently been discussed by Sandiford and Wheeler,[5] who have shown that the rapid increase in the basal metabolic rate that occurs

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Plummer, H. S.: Functions of the Normal and Abnormal Thyroid Gland, Oxford Medicine, New York, Oxford University Press **3**: 839-873, 1922; The Function of the Thyroid Gland (Beaumont Lecture), St. Louis, C. V. Mosby Company, 1926.

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4. Mayo, C. H., and Boothby, W. M.: The Mortality Rate Following Operations on the Thyroid Gland, J. A. M. A. **80**: 891-893 (March 31) 1923. Pemberton, J. de J.: Mortality in Surgery of Exophthalmic Goiter, Surg. Gynec. Obst. **36**: 458-462 (April) 1923; Present-Day Surgical Treatment of Diseases of the Thyroid Gland, J. A. M. A. **85**: 1882-1886 (Dec. 12) 1925. Plummer, H. S.: Interrelationship of the Function of the Thyroid Gland and of Its Active Agent, Thyroxin, in the Tissues of the Body, J. A. M. A. **77**: 243-247 (July 23) 1921.

5. Sandiford, Irene; and Wheeler, Theodora: The Basal Metabolism Before, During and After Pregnancy, J. Biol. Chem. **62**: 329-352 (Dec.) 1924.

during the last three months of pregnancy (if the calculations are made in the usual way) is not due to the presence of an excess of thyroxin in the tissues, although the growing fetus may make a greater demand on the thyroid gland; this demand would explain the compensatory enlargement of the thyroid that frequently occurs in pregnancy. On the contrary, these authors showed that this elevation of the metabolic rate is caused by an increase in the amount of protoplasmic tissue, due largely to the growing fetus, and partly to the increased protoplasmic mass of the mother incident to pregnancy. The practical point is that during the early months of pregnancy the basal metabolic rate is not increased, or at least is not materially increased, as a result of pregnancy, but that at the end of pregnancy the rate may be from 20 to 25 per cent above the Du Bois standard if calculated in the ordinary manner without allowing for the development of the fetus. Therefore, a basal metabolic rate of + 25 or even + 30 is not necessarily an indication of hyperthyroidism in the latter months of pregnancy. In the forty-two cases reported here, the rate definitely exceeded that which could be expected from the pregnancy itself.

To elucidate the questions of a possible relationship between exophthalmic goiter and adenomatous goiter with hyperthyroidism and pregnancy, as well as to determine their clinical effect on one another, a study has been made of all women whose pregnancy was complicated by these diseases and who were examined at the Mayo Clinic during the ten-year period from Jan. 1, 1916, to Jan. 1, 1926. Of the group of 5,043 women with exophthalmic goiter examined during this period, only thirty-two were pregnant, and of the group of 2,185 women having adenomatous goiter with hyperthyroidism, only ten were pregnant. Since approximately 70 per cent of patients having adenomatous goiter with hyperthyroidism are more than 40, while about the same percentage of patients with exophthalmic goiter are less than 40, the proportion of women pregnant while having the latter disease is slightly greater than of the former. Of the 7,228 women in the two groups, only forty-two (0.6 per cent) were pregnant. This rare coincidence confirms Markoe's[6] statement, made in 1918, that of approximately 100,000 pregnant women at the New York Lying-In Hospital only eight appeared to be suffering from hyperthyroidism. These observations are particularly interesting since ours were made primarily from the point of view of a large thyroid clinic, while Markoe's were made from a correspondingly large obstetric clinic. Our data can be further contrasted with those given in a report from the Mayo Clinic by Mussey,[7] in which 1.9 per cent of women operated on for appendicitis and 1.7 per cent of those operated on for disease of the gallbladder were pregnant.

In the cases of this series, there was no evidence that pregnancy influenced the course of exophthalmic goiter. In some instances, at the time of the first examination the patients stated that their symptoms were better, and others said that they were worse after the onset of pregnancy. This is of little significance, however, as exophthalmic goiter is a disease that fluctuates considerably in intensity, although one would naturally expect that a pregnant woman suffering from this disease would not, on the whole, stand the double load so well. In only two of the thirty-two cases of exophthalmic goiter could the onset of the disease be considered, with reasonable certainty, to have developed during the pregnancy. In each of these cases the onset was rapid and severe, and was accompanied by definite nausea and vomiting, symptoms characteristic of the crisis stage of exophthalmic goiter, but in both it was first mistaken for the vomiting so frequently associated with pregnancy. While it is possible that the vomiting was due to both conditions, it is well to emphasize that it is not infrequent in exophthalmic goiter, because in such cases it can be completely relieved by proper use of compound solution of iodine (Lugol's solution). Thirty women became pregnant during the course of exophthalmic goiter, mostly during a period of remission in the disease: three of these after ligation of the superior thyroid arteries, and three during a recurrence of the disease following partial thyroidectomy.

None of the mothers with exophthalmic goiter died while under our observation. It has been reported that one mother died in childbirth subsequent to her return home, after marked improvement following ligation and partial thyroidectomy. We have not been able to obtain the details in this case, but judging from the patient's condition on dismissal, it seems probable that the death should not be attributed to the exophthalmic goiter.

Of the thirty-two patients with exophthalmic goiter, twenty-three were delivered at term, two aborted, two were delivered prematurely, two are now pregnant, and three have not been traced. One of the abortions occurred at the sixth week. The patient was not acutely ill and had returned home for rest and observation prior to partial thyroidectomy. The other occurred at three months, seventeen days after a second ligation of a superior thyroid artery. Premature labor occurred at six and a half months in one case; the woman was acutely ill with pyelonephritis, although the symptoms of exophthalmic goiter had somewhat improved as the result of a ligation of a superior thyroid artery three months previously. In the other case premature labor occurred at the sixth month of gestation, one month after ligation of a superior thyroid artery. Although this patient was not under our care at the time of delivery, we learned that the onset of labor was preceded for several days by marked general edema. All but two of the twenty-three full-term babies were alive and normal at birth. One of the two was stillborn following a difficult forceps delivery. Details about the other, whose mother died in childbirth, are not known.

In considering the methods of treatment used for the relief of exophthalmic goiter in cases of pregnancy, the patients may be advantageously divided into two groups: those treated before the introduction of iodine as a therapeutic aid in the control of exophthalmic goiter (twenty patients), and those treated after this period (twelve patients), which treatment dates from the early spring of 1923. Eighteen of the patients in the first group received some form of operative treatment. Ligation of one or both superior thyroid arteries was performed on twelve patients. This was followed by partial thyroidectomy on four, and eight were carried through pregnancy without thyroidectomy. Primary partial thyroidectomy was performed on six patients. One of the two patients not operated on presented herself at the third month of pregnancy with a recurring exophthalmic goiter which had developed following partial thyroidectomy three years previously; however, she had no further complications during pregnancy. The other patient not operated on, who had mild exophthalmic goiter, returned home and aborted spon-

6. Markoe, J. W., in discussion on Watson, L. F.: Goiter in Pregnancy, J. A. M. A. 71: 877-878 (Sept. 14) 1918.
7. Mussey, R. D.: Surgical Conditions Complicating Intra-Uterine Pregnancy, Am. J. Obst. 77: 806-812 (May) 1918.

taneously four weeks later. This patient and six of those on whom ligation had been performed during pregnancy had partial thyroidectomy subsequently. In the second group the use of iodine obviated the necessity of any preliminary ligations.[8] Thyroidectomy was performed on seven after their symptoms had improved under treatment with compound solution of iodine, and three were carried through pregnancy on the solution without operative intervention. Two patients receiving compound solution of iodine are now under observation. One, who is eight months pregnant, has recurrent exophthalmic goiter, and the other, who is seven months pregnant, has mild exophthalmic goiter.

All of the ten patients having adenomatous goiter with hyperthyroidism became pregnant after the onset of the hyperthyroidism. None of the mothers died, and nine were delivered of normal living babies; one baby was stillborn because of dystocia. All but one of the mothers had had some form of operative treatment on the thyroid gland; one patient had had a single injection of quinine and urea, intended only as a preliminary procedure, but as she improved and went home nothing further was done; two had undergone ligation only and six, partial thyroidectomy, in one instance following ligation; one patient went through to the normal termination of pregnancy without operative treatment.

SUMMARY

In reviewing these cases of exophthalmic goiter and adenomatous goiter with hyperthyroidism associated with pregnancy, one is first impressed with the rarity of the association. It is also noteworthy that serious additional complications were not more frequent than is usual in either condition alone, and that therapeutic abortion was not necessary. Finally, both the course of pregnancy and the maternal and fetal mortality were not appreciably affected as the result of the syndrome due to exophthalmic goiter or to adenomatous goiter with hyperthyroidism, nor, on the other hand, did the pregnancy render the control of these two diseases noticeably more difficult.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. DAVIS AND DRS. MUSSEY, PLUMMER AND BOOTHBY

DR. OTTO SCHWARZ, St. Louis: These two papers seem to emphasize two definite points: 1. Iodine, given cautiously, is of benefit in normal pregnancy as well as in the presence of diffuse colloid goiter of varying degree. 2. Even in rather severe cases of hyperthyroidism, including exophthalmic goiter, when properly observed and treated by the most recent methods, the pregnancy does not in any great degree aggravate the hyperthyroidism, nor does the hyperthyroidism noticeably affect the pregnancy. One of the most interesting points in Dr. Davis' paper is the fact that he has controlled the thyroid hypertrophy of pregnancy to a considerable degree, and with this has definitely lowered the basal metabolic rate for later pregnancy. Recent investigations by Standiford and her associates indicate that the energy production of a unit mass of mother's protoplasmic tissue remains unchanged throughout the course of pregnancy, and that such increases of total heat production as occur are due to the increasing mass of active protoplasmic tissue, consisting in the large part of fetal tissues, and in lesser part of maternal structures. To my understanding, such comparisons must be made on the basis of the energy production per unit mass of fetal tissue, immediately after birth. Judging from the rather low metabolic rate found in premature, as compared to the matured new-born, fetus, and also remembering that such a structure as the pregnant uterus, near term, offers an ideal environment for an organism to exist, with a minimum production of energy, I feel that Dr. Davis' findings seem to indicate that his treatment has actually diminished the strain on the thyroid during late pregnancy, which is ordinarily in a state of hyperactivity at this time. This seems to have occurred with no apparent detriment to either mother or child. In seeking for information on histologic changes of the human thyroid during pregnancy, I was unable to find any particular detailed information. Therefore, for my own satisfaction, I studied a series of thyroids from pregnant guinea-pigs, removed at various stages of pregnancy. The changes were striking. About the end of the first third of gestation, there is a marked hyperplasia of the interfollicular tissue, with slightly increased storage of colloid. At the middle of gestation, the hyperplasia of the interfollicular tissue is even more marked and the colloid storage only slightly more increased. During the time that corresponds to between fifty and fifty-five days of gestation, the colloid spaces are markedly distended with colloid and the interfollicular tissue is much compressed and thinned out. At term, however, the colloid storage has markedly decreased and the interfollicular tissue again becomes more prominent but much less so than in midpregnancy. With this information and from additional data obtained from a study of carbohydrate metabolism in late pregnancy complicated by hyperthroidism, I feel that this thyroid activity may be helpful in speeding up glycogenolysis during this period, in order that the fetus may obtain carbohydrate more readily, which it needs so abundantly for the storage of glycogen and fat at this time. Judging from Dr. Davis' work with iodine, the condition of the fetus at birth suggests that the necessary nutrition has been received with no definite hypertrophy of the thyroid and no great increase of metabolism.

DR. J. L. BAER, Chicago: The most recent textbook on the subject of metabolism, "Health and Disease," by Du Bois, in 1924, devotes just two of 350 pages to the subject of the thyroid in pregnancy, although the thyroid in pregnancy shows a reaction more striking than it shows normally under any other condition in health. Furthermore, in that brief exposition of the subject, the rate of metabolic increase is placed at about 4 per cent plus, whereas in the series that I carried out in 1921 with selected cases, the rate showed at full term an average of 33 plus. Both Dr. Davis and Dr. Mussey accept as reasonably reliable the fact that women may normally have as high as from 20 to 25 plus, or even 30 plus at full term, confirming the work I did in 1921. The fact that pregnant women develop a palpable thyroid so commonly found in pregnancy, the further fact that these women so usually and regularly after delivery lose that palpable thyroid without any treatment, the further fact that this occurs in series under the observation of obstetricians not only in the goiter belts of the United States but also on the sea coast and gulf coast where presumably there is no deficiency in iodine content in the available diet of women, should make us a bit conservative about considering that enlargement of the thyroid as an abnormal situation. Further, the attitude of the internists and surgeons today is undergoing a decided change in its relation toward the thyroid. As Dr. Plummer worked out in his clarification of toxic thyroid, the adenomatous toxic thyroid or secondary toxic thyroid is one in which the administration of iodine is directly contraindicated, whereas in acute primary toxic thyroid iodine is no longer a prolonged therapeutic agent but is beginning to be regarded solely as a preparatory measure preliminary to surgery. In other words, a woman developing an acute primary toxic thyroid is now made ready for surgery under iodine rather than treated under iodine as an essentially medical case. If, then, this attitude toward the toxic thyroid is correct, it behooves us to be a bit cautious about recommending the routine administration of iodine to all pregnant women in the goiter belts. In this I hope that Dr. Davis, who is making a preliminary report, will agree with me. The information available to the medical profession at large as to the differentiation between simple thyroid, adenomatous thyroid

8. Boothby, W. M.: Iodine in the Prevention and Treatment of Goiter, J. Indiana M. A. 18: 5-8 (Jan.) 1925.

and primary toxic thyroid is still not sufficiently well clarified to warrant us in urging that they take a free hand in the administration of iodine.

DR. J. EARL ELSE, Portland, Ore.: In the University of Oregon goiter clinic we became interested in the relationship of pregnancy to goiter, because we had a group of children partly under school age and partly in the early school ages, which would not yield to treatment. In following up this group we discovered that a certain percentage of them were from goitrous mothers. Halsted, in 1896, observed that female dogs that had a large portion of the thyroid removed always had goitrous puppies. In the goiter clinic we have not studied a single goiter family, that is, a family in which all the children had goiters, without finding that the mother also had a thyroid defect. For this reason I believe that this problem should receive more consideration then it has in the past. The thyroid gland has two secretions, colloid and the active principle thyroxin. Whenever a demand comes on a thyroid for more thyroxin than it can secrete, the first reaction is an increase in colloid secretion; consequently, the ordinary goiter of pregnancy is a nontoxic colloid goiter. When the stimulation resulting in the oversecretion of colloid is not effective in causing an increased secretion of thyroxin, hyperplasia occurs. Hyperplasia may be either of the cells lining the acini, or of the acini and in either case may result in a hyperthyroidism. Dr. Mussey spoke of the rarity of exophthalmic goiter in pregnancy. It is true that patients with exophthalmic goiter rarely become pregnant, but on the other hand, pregnant women often develop exophthalmic goiter. Pregnancy is an important etiologic factor. We are interested in the use of iodine in pregnancy. A woman must produce more thyroxin during pregnancy then at other times, and therefore needs a greater amount of iodine. While it is true that the taking of iodine will occasionally cause a nontoxic goiter to become toxic, the giving of iodine to pregnant women will insure normal thyroid glands in children, and we cannot afford to endanger hundreds of children because of an occasional mother who would be made toxic. Early in pregnancy we have edvised operation for all toxic goiter. I have never seen a death or an abortion follow the operating on a pregnant woman for goiter. Late in pregnancy I have advised the use of compound solution of iodine and the roentgen ray if necessary.

DR. CARL HENRY DAVIS, Milwaukee: I believe with Dr. Else that we can largely if not entirely prevent congenital goiter by the use of iodine during pregnancy. It is undoubtedly a mistake to let any adult patient continue to take iodine over an indefinite period unless under medical supervision. This explains why we have discontinued the use of iodine in most of these patients with delivery. This work will be continued, and I hope that these papers will stimulate a renewed interest in the subject all over the country, so that our textbooks will not continue to disregard this subject the way they have.

DR. ROBERT D. MUSSEY, Rochester, Minn.: Dr. Davis has presented an interesting and careful clinical study on the use of iodine in pregnancy. Continued investigation of a large number of pregnant women with repeated basal metabolic rate estimations under similar conditions will be extremely valuable. I wish to emphasize one point in our paper, which is that we believe the increased rate that occurs toward the later months of normal pregnancy is not evidence of hyperthyroidism. No more secretion is thrown out by the thyroid than is demanded by the increased protoplasmic mass of fetus and mother, and there is not an excess concentration of thyroxin in the tissues. I quite agree with Dr. Else that an enlargement of the thyroid gland frequently occurs in pregnancy. He no doubt sees many patients in a region where goiter is endemic and where, as a result, the incidence of goiter in pregnancy is higher than the average. A previous study at the Mayo Clinic showed that approximately 2 per cent of the women having adenomatous goiter without hyperthyroidism presenting themselves at the clinic were pregnant, while only 0.6 per cent of the women having exophthalmic goiter and adenomatous goiter with hyperthyroidism were pregnant.

TONSILLECTOMY IN CHILDREN

INDICATIONS BASED ON END-RESULTS *

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ROCHESTER, N. Y.

In recent years the removal of tonsils in children has become so common that the query naturally arises: What are the indications for this operation? Any medical or surgical procedure that affects such a large percentage of the children of a community must eventually be justified or condemned. To be justifiable, definite end-results must be ascertained. From these end-results, information can be gathered which will help to formulate the conditions existing in a child which will in the future determine the indications for the operation. If one could assume that the tonsil had no function and was a harmful organ, there would be no need for a study of this kind. Such an assumption, however, is not warranted at present; and, even if it were, tonsillectomy is not devoid of certain risks, so that its universal application is certainly not justifiable.

Today the indications for tonsillectomy vary in communities and with different physicians. What constitutes a just cause for operation for one physician does not determine it with another. Not infrequently, the financial status of a patient has some bearing on the decision. Many children have been subjected to this operation for no reason, and such a situation is apt to continue until the end-results of the children operated on are compared with the end-results of the children not operated on. A comparison of these groups will show in a measure where tonsillectomy may prove of benefit to the child.

Five years ago a group of 8,000 children, most of them between 5 and 10 years of age, were admitted to a clinic for tonsillectomy. An indication for operation was said to exist in all of these children. In the school survey made previous to the clinic, there were in all about 18,000 children in whom operation for the removal of tonsils and adenoids was recommended. More than half of this large group, however, failed to appear for operation. Refusing operation, but with apparently the same indications, they furnished satisfactory controls for the study of the group in which operation was performed. The clinical history and physical examination of these children were recorded. At the end of one year after operation 5,000 were reexamined, and at the end of three years 2,400 were reexamined. In the second examination an equal number of children operated on and not operated on appeared, so that the clinical history and physical data could be compared in the two groups with similar indications for tonsillectomy. It is from the study of these two groups that the deductions are made which may aid in determining the indications for tonsillectomy. With few exceptions, the children that were operated on were over 5 years of age, so that both tonsils and adenoids were removed.

An analysis of the complaints of these children shows that mouth breathing was by far the most common one. Of the 1,200 children that were operated on, 1,057 were mouth breathers at the time of operation, and 864 out of 1,200 in the control group. Three years after tonsillectomy and adenoidectomy, only 122 were

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

reported by the parents to be mouth breathers, while in the group not operated on after the same period, 830 children were reported as mouth breathers. The operation relieved 88.5 per cent of the children, while in the control group over the same period relief came to 4.5 per cent.

The complaint of frequent sore throat, including tonsillitis, occurred about equally in the two groups up

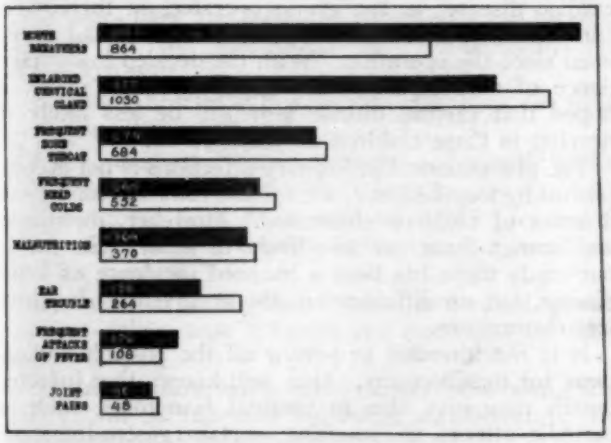

Chart 1.—Complaints in two groups of 1,200 children at time of operation; shaded, to be operated on; white, not operated on.

to the time of operation. During the last three years in the group operated on, the incidence of this complaint was materially reduced. After operation, sixty-four children were still subject to frequent sore throat, as compared to 674 before the removal of tonsils. In the control group, 586 were having frequent sore throats, as compared to 684 three years before. Obviously, removal of tonsils offers speedy relief to the majority of children subject to frequent sort throats.

Frequent head colds were complained of by nearly half of the children in this group before operation. During the last three years, 146, or 27 per cent, were still subject to frequent head colds, and forty-one were having this infection for the first time since operation. In the group not operated on, 552 children were subject to frequent head colds, and when examined three years later, 614 of the 1,200 were having this complaint. The operation brought relief to many of these children, but about 25 per cent fail to get relief from a tonsil and adenoid removal. At least some of this unrelieved group had a paranasal sinus infection, but no study has been made on them to detect the cause of their susceptibility to colds.

Persistent enlargement of the anterior and posterior cervical glands is given as a cause for the removal of tonsils. What the relationship is between diseased tonsils and enlarged cervical glands has not been definitely established. Other sources of infection must be considered—teeth, ears, sinus and skin. Only such glands were considered enlarged that could be definitely palpated or those that were visibly enlarged. At the time of operation, glands were either definitely palpable or visible in 977 of the 1,200 children operated on. Three years later, the following changes were noted in these children. The examinations were made during the winter in both instances, and that undoubtedly accounts for the high incidence of enlarged glands. However, the two groups were examined at the same time, justifying a comparison. There were 734 children in whom the glands were either definitely palpable or visibly enlarged. This is a reduction of 243 in the group operated on. In the control group, 1,056 children presented palpable or visibly enlarged glands, an increase of twenty-six in the three year period. It is evident that conditions other than infected tonsils might cause swollen glands. Infected teeth were responsible for enlargement of the glands in both groups. Allowing for the cases due to infected teeth, ears, sinus and skin, it is evident that the infected tonsil is not the only other cause for enlarged glands. It seems to indicate that children in cities where respiratory infections are prevalent in the winter months may show glandular enlargement due to absorption through the lymphoid tissue of the pharynx even when the known foci of infection are removed. However, with a lessened evidence in the group operated on, it strongly suggests that a certain percentage of children with enlarged glands are infected through the tonsils.

Malnutrition is frequently given as an indication for the removal of tonsils and adenoids. Malnutrition was based on the height-weight relationship, and the two groups were weighed at the same time and under the same conditions. At the time of operation, 364 children were underweight and 370 control children were underweight. Three years later, 150 of the children operated on and 252 of the control children were underweight. This represents a reduction of 17.5 per cent of malnutrition in the group operated on and 10 per cent in the control group. There are striking examples of nutritional improvement following tonsillectomy, but one also sees that in control children for unexplained reasons. When the nutritional status of a group is studied in comparison with a control group, the improvement is not so striking. However, the improvement is still greater than in the control group. Before incriminating the tonsil in cases of malnutrition, every other cause should be excluded; otherwise there will be many disappointments.

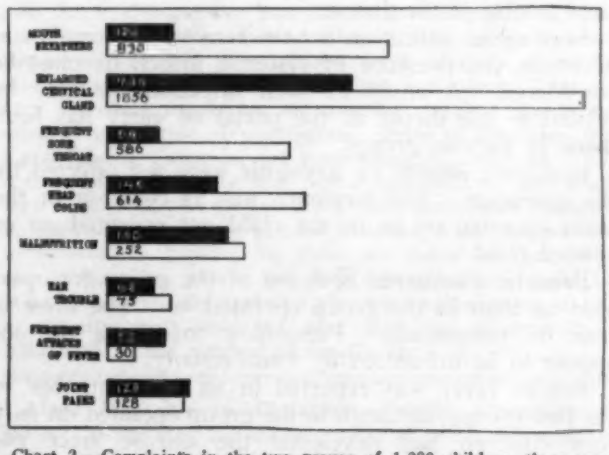

Chart 2.—Complaints in the two groups of 1,200 children, three years after operation: shaded, operated on; white, not operated on.

A history of discharging ears had been given in 136 of the 1,200 children previous to operation, while in the group not operated on 264 presented the same complaint. During the three year period following operation forty-two children had discharging ears, while in the control group seventy-five children had discharging ears. As ear infections are more common under 5 years of age, it must be assumed that tonsillectomy was not entirely responsible for this lessened incidence, especially when it is noted that in the control

group there was even a greater decrease in the incidence.

Frequent attacks of unexplained fever are noted as a definite complaint before operation in 120 children. A similar history could be obtained in 108 control children. Three years later, similar complaints were elicited from fifty-two of the operated children and thirty children not operated on, or control children. Tonsil-

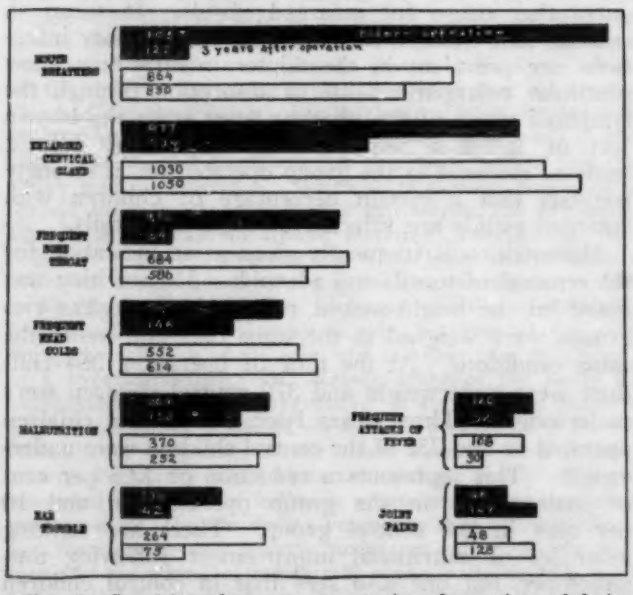

Chart 3.—Complaints of two groups up to time of operation and during three year period subsequent to operation: shaded, operated on; white, not operated on.

litis may have been the cause of these unexplained fevers in some instances, but with the infrequency of this complaint in the group not operated on it is fair to assume that these frequent unexplained fever attacks are probably in many instances due to conditions other than trouble in the throat.

Seeking an indication for the removal of tonsils and adenoids, the presence of systemic infections must be considered. A study of such infections as may be related to the throat as the portal of entry has been made in the two groups.

Recurrent attacks of laryngitis were not affected by the operation. The incidence was as common in the child operated on as in the child not operated on or control child.

Bronchitis occurred in fewer of the group not operated on than in the group operated on. The same is true of pneumonia. Pulmonary infections do not appear to be influenced by tonsillectomy.

Scarlet fever was reported in an equal number in the two groups, although in the group operated on only four children had developed the disease since the operation.

Measles was found to have existed in more of the group operated on than of the children not operated on. Removal of the tonsils confers no immunity to this infection.

Diphtheria was reported in eighty-three children not operated on and fifty-six of those who were operated on. Only three cases had occurred since the operation. However, it seems that the tonsillectomized child is less likely to develop this disease, probably because there is less opportunity for the diphtheria bacilli to grow.

Much is hoped from tonsillectomy in reducing the incidence of the so-called rheumatic syndrome. Chorea had existed in seven of the children not operated on and in eight of the group operated on. Six of the eight children developed it since the removal of the tonsils. A history of rheumatic pains was obtained in equal numbers in the two groups. Cardiac disease was based on the physical examination. In the control group, fifty-two children presented evidence of cardiac disease; in the group operated on there were forty-four cases, of which number thirteen had developed since the operation. With the decided lower incidence of sore throat in the group operated on, it is hoped that cardiac disease also will be less likely to develop in these children as years go on.

The prevention of pulmonary infections is not accomplished by tonsillectomy, nor are the common contagious diseases of children eliminated. However, diphtheria and scarlet fever are less likely to occur. So far in our study there has been a lessened incidence of heart disease, but no difference in the occurrence of chorea and rheumatism.

It is not intended to review all the possible indications for tonsillectomy. It is well known that infected tonsils may give rise to unusual symptoms, such as periodic attacks of vomiting, certain gastro-intestinal disturbances, and poor appetite. No control, however, could be made of such cases and therefore no deductions.

The end-results of a tonsil and adenoid operation are generally based on the impressions one gains. If a careful investigation is made, the favorable progress of a child is attributed to the operation and no mention is made of the child who does equally well but in whom the tonsils had not been removed. When one compares

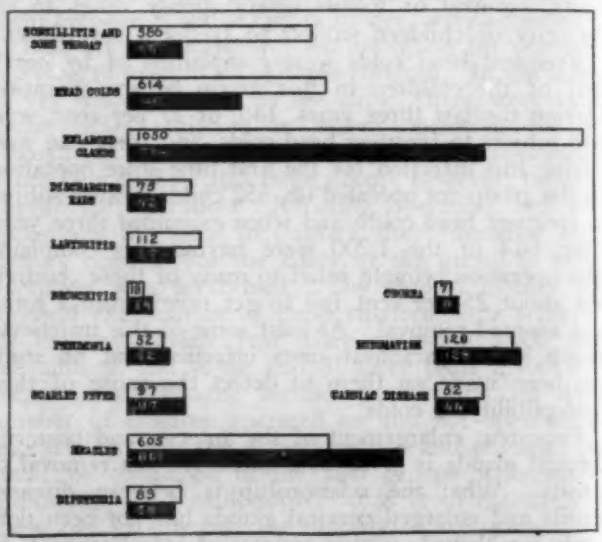

Chart 4.—Incidence of infection in tonsillectomized children over a three year period, as compared with an equal number not operated on: shaded, children operated on; white, children not operated on.

these children in groups, the striking results one anticipates are not so obvious. So long as tonsillectomy is restricted to extreme cases, uniformly good results will follow; but as soon as one enters the field of prophylactic tonsillectomy, less striking results are obtained and it becomes more difficult to construct definite indications for the operation. If by careful control study it can be shown that the child who is subjected to this operation, even though there is no outstanding indica-

tion, is a little better off ultimately than his colleague not operated on, a justification for the operation exists. Such an attempt has been made in this study.

CONCLUSIONS

Based on an analysis of the complaints of 1,200 children with the results found three years later and compared to 1,200 children with similar complaints but in whom operation was denied but also examined three years later, the following conclusions can be made bearing on the indications for tonsillectomy and adenoidectomy:

1. Mouth breathing is a definite indication for tonsil and adenoid removal.

2. Frequent attacks of sore throat and tonsillitis offer a definite cause for removal of tonsils.

3. Frequent head colds, relieved in 75 per cent of the cases, offers a definite indication for tonsil and adenoid removal.

4. Persistent enlargement of the cervical glands, when no other cause is found, is a just cause for tonsil removal.

5. Malnutrition, when other causes have been eliminated, will be improved somewhat and therefore may be considered an indication.

6. Chronic and recurrent discharging ears are an indication for the operation.

7. Unexplained fevers, in the absence of other indications, may be a just cause for tonsillectomy; but there is no guaranty that they will not recur unless the fever comes from an obscure tonsil infection.

8. For the prevention of respiratory infections, such as laryngitis, bronchitis and pneumonia, no positive indication exists, as the incidence of these infections was not influenced favorably or unfavorably by operation.

9. The prevention of diphtheria and scarlet fever may be considered an indication, as the incidence of these diseases was slightly less in the group operated on; and when it did occur, the sequelae were less serious when the tonsils were removed.

10. The presence of positive or suspected evidence of the rheumatic syndrome manifestations, rheumatism, chorea and heart disease, is a definite indication for tonsillectomy in view of the lessened incidence of heart disease in the group operated on.

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ABSTRACT OF DISCUSSION

DR. HUGH MCCULLOCH, St. Louis: My view is primarily that of a pediatrician who must determine the question of tonsillectomy in children who have been watched during most of their lives. This is somewhat different from that of Dr. Kaiser and his surgeons. Secondarily, I have been interested, as a pediatrician, in heart disease, and in that connection I have reached certain conclusions. In general, the best results that I have seen come from tonsillectomy have been in those children who have recurring attacks of tonsillitis in spite of adequate medical care. It is most important for the physician who is to make a decision as to operation to know whether these attacks are occurring in the presence of a hypertrophic inflammatory reaction in the nasopharynx. Certainly the children who show a tendency to this form of infection have not been benefited much by operation. Tonsillectomy under these conditions has only a slight influence on the course of the infection left behind. It is most important to see the child during the attacks of so-called sore throat to determine the nature of the illness. The time for reexamination of the child is not after twelve or twenty-four months, but at the end of each month until the child has gone through at least two winters. If proper postoperative observation is carried on, many recurrences of infection will not happen. In cardiac disease among children, the tonsils should be removed, irrespective of their appearance, with the hope of preventing further attacks of tonsillitis resulting in rheumatic fever and heart injury and with the idea of relieving the patient of as much infection as possible. We have come to look on diseased tonsils as a focus of infection causing rheumatic fever, heart disease and chorea.

DR. ROY A. BARLOW, Madison, Wis.: There is a tendency on the part of the physician to imply brilliant results when there is no ground for such an attitude. The points that have been brought out will certainly save us some embarrassment and tend to keep the procedure of tonsillectomy from falling into disrepute with the laity. I was pleased to note that the method of operating was not limited to any one technic. I am convinced that there is no one and only method of tonsillectomy. The general principles of surgery apply to tonsillectomy as to any other surgical procedure. I feel that no one should attempt a tonsillectomy unless he has as a basis a dissection technic. This being acquired, we may use any one or all methods of tonsillectomy—they are all personal adaptations of the fundamental principles, and any method whereby the operator removes the tonsil cleanly with a minimum amount of trauma and bleeding, leaving the field in good condition, is satisfactory. The Sluder and Beck methods are rapid and safe, and I feel that all other mechanical operations are modifications of these to suit the operator. We select the method most satisfactory to our hand, but it is unjust to condemn any method simply because we are unable to use it. A few complications will occur under the most favorable conditions. More than ever we are justified in considering tonsillectomy a hospital procedure, and I am inclined to deprecate the practice of operating in the home or office unless competent assistants and adequate equipment are available.

DR. W. V. MULLIN, Cleveland: I should like to mention two points. First is the question of cervical glands. Dr. Shurly, in discussing a paper the first day of this session, said that in children in whom glandular enlargement persisted after foci such as tonsils and adenoid and sinuses had been eliminated, he put the children on a mixture containing ground-up vegetables as the principal ingredient. That is a very important suggestion showing that cervical glands may often be a question of metabolism. Prior to February, 1926, I practiced in Colorado, and since being in Cleveland, I have been impressed by the fact that I saw children and adults with enlargement of the cervical glands much more frequently in Colorado than in my present location. I am not referring to tuberculous glands; but there are many instances when one or the other parent had been tuberculous. I make this point to bear out the fact that glandular enlargement is often a constitutional condition and will not necessarily be influenced by the removal of tonsils, etc.

Acute Nephritis in Childhood.—Febrile albuminuria, I believe, constitutes the mildest form of acute nephritis. In many febrile conditions, such as pneumonia and rheumatism, it is possible in a series of cases to find some showing albuminuria, with or without casts, others showing a transient hematuria, and again others showing an obvious acute nephritis. The transient hematuria is typically seen in acute rheumatism; the patient does not appear to be any the worse for the occurrence, and the course of the disease is not modified. The true significance of these cases does not seem to have been recognized by many writers, some of whom speak of the condition as "renal irritation." There can be no doubt, I think, that these are actually a very benign type of nephritis, and that a febrile albuminuria may represent the mildest type of hemorrhagic or glomerular nephritis.—Parsons, L. G.: *Brit. M. J.*, Aug. 28, 1926.

MERBAPHEN (NOVASUROL) AS A DIURETIC IN CONGESTIVE HEART FAILURE *

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Merbaphen (novasurol), a double salt of sodium oxymercurichlorphenyl oxyacetate with diethylbarbituric acid, was introduced in Germany nearly a decade ago for the treatment of syphilis.[1] It contains approximately 34 per cent of mercury, but is administered in the form of a 10 per cent solution by intramuscular or intravenous injection. Its diuretic value was first pointed out by Saxl and Heilig,[2] and in the five years since the appearance of their paper the drug has been employed chiefly as a diuretic rather than as an antisyphilitic. Their report was soon followed by many others,[3] all of them emphasizing the extraordinary diuresis which often followed the administration of merbaphen, and many of them asserting that it is superior to all other diuretics, as indicated by its effects in patients who had failed to respond to the drugs customarily used. Burwinkel alone of those quoted voices a more conservative opinion, stating that in his experience merbaphen proves most effective in those individuals who have responded, but not adequately, to theophylline and theobromine.

While there can be no doubt that merbaphen has often caused great diuresis, it is unfortunate that many of the enthusiastic statements as to its efficacy are not supported by case records or details of the medication other than merbaphen which was employed. It seems fairly certain that in some instances digitalis and the xanthine diuretics were discarded as ineffective when inadequate doses had been given, and many of the excellent results reported were obtained in patients who received no diuretic other than merbaphen. Such cases, of course, give no information concerning the relative value of the mercurial preparation.

There appears to be universal agreement concerning the following effects of merbaphen after its intravenous or intramuscular administration: 1. The excretion of water and of chlorides is greatly increased, the increase in chloride excretion being far greater than that in water excretion. 2. Diuresis, if it occurs at all, begins within two or three hours after the injection; reaches its maximum in from eight to twelve hours, and thereafter steadily declines. Diuresis has usually ceased within twenty-four hours, but occasionally extends into the second day. 3. There is no evidence of renal injury caused by the drug. 4. It has little or no effect on inflammatory exudates. 5. A certain number of individuals exhibit unpleasant, and even alarming, reactions.

These toxic side-actions of the drug have been mentioned by almost every observer. In most instances they are clearly attributable to the mercury, as the observed symptoms are those of mercurial poisoning: stomatitis, salivation, hemorrhagic colitis, etc. A number of patients, however, have been thrown into a state of collapse, with chills, sweating, cyanosis, fever, and in a few instances rather prolonged urinary retention. This last type of reaction is far less common than the others. One case has been reported [4] as a fatality due to a single dose of merbaphen, but Saxl [5] immediately pointed out that there were excellent reasons for believing that death was not due to the mercury, and that even if merbaphen was responsible, it must be recognized that it was given in spite of clear contraindications.

The dose usually employed has been from 0.75 to 2 cc. of the 10 per cent solution. In the last several years it has become a matter of general custom to administer a small dose first and, if no untoward reaction occurs, to increase the dose to 2 cc. later. The most extraordinary diuresis yet reported (Hassencamp [3]), 11,520 cc., of urine in twenty-four hours, followed the administration of 4.4 cc., a dose regarded as dangerous by most observers. Henius [6] has warned against the use of even 2 cc., stating that it often causes hemorrhagic colitis in patients who can receive 1 cc. without harm.

There is general agreement that the chief indication for the use of merbaphen is the presence of edema due to congestive heart failure. Most of the earlier writers warned vigorously against its employment in patients with evidence of renal disease, and Saxl [5] has recently sounded this warning again. More recently, however, Keith and his co-workers [7] have shown that merbaphen is sometimes quite effective in cases of nephritis with edema, especially if given in conjunction with ammonium chloride. Rowntree, Keith and Barrier [8] have reported excellent results from merbaphen and ammonium chloride in cases of ascites due to cirrhosis of the liver.

It has been clearly established that merbaphen sometimes provokes satisfactory diuresis in patients who have failed to respond to adequate doses of theophylline, theobromine or theobromine sodiosalicylate, but the number of such cases on record that will stand critical analysis is not large. Apparently no attempt has been made to compare this drug with other diuretics in patients who respond to both types of medication; the comparison has been limited to those individuals who failed to react to the usual drugs. Such studies cannot determine the entire field of usefulness of merbaphen, since it is administered to a small and strictly selected group. The purpose of the present study was to attempt a comparison of the diuretic effectiveness of merbaphen with that of the drugs previously available, using patients who responded to both types of treatment as well as those who failed to react to the usual therapy. Theophylline and theobromine were used as the control diuretics.

METHOD OF STUDY

The patients selected for study were those with advanced congestive heart failure characterized by large amounts of edema; no selection was made on the basis

* Merbaphen is described on page 255 of New and Nonofficial Remedies, 1926, under the name of Novasurol.

* From the Department of Internal Medicine, Yale University School of Medicine, and the New Haven Hospital.

1. Zeiler, K.: Novasurol, ein neues Quecksilbersalz zur Syphilisbehandlung, mit Bemerkungen über die Grundsätze der Quecksilberbehandlung, München. med. Wchnschr. **64**: 1257, 1917.

2. Saxl, P., and Heilig, R.: Ueber die diuretische Wirkung von Novasurol und anderen Quecksilberinjektionen, Wien. klin. Wchnschr. **33**: 943, 1920.

3. Brunn, F.: Zur Wirkung des Novasurols als Diuretikum, München. med. Wchnschr. **68**: 1554 (Dec. 2) 1921. Hubert, G.: Erfahrungen mit Novasurol als Diuretikum, ibid. **68**: 1555 (Dec. 2) 1921. Kulcke, E.: Novasurol als Diuretikum, Klin. Wchnschr. **1**: 622, 1922. Geronne: Ueber Novasurol, Therap. d. Gegenw. **63**: 77 (Feb.) 1922. Hassencamp, E.: Novasurol als Diuretikum, Zentralbl. f. inn. Med. **43**: 105 (Feb. 11) 1922. Haggeney: Novasurol als Diuretikum, Med. Klin. **18**: 48, 1922. Burwinkel, O.: Ueber Novasurol, München. med. Wchnschr. **69**: 202, 1922. Bleyer, L.: Erfahrungen über die Novasuroldiurese, Klin. Wchnschr. **1**: 1940 (Sept. 23) 1922. Grothusen: Novasurol bei Herzkrankheiten, Deutsch. med. Wchnschr. **50**: 646 (May 16) 1924.

4. Redlich, F.: Letale Quecksilberintoxication nach einmaliger Novasurolinjektion, Wien. klin. Wchnschr. **38**: 359 (March 26) 1925.

5. Saxl, P.: Letale Quecksilberintoxication nach einmaliger Novasurolinjektion, Wien. klin. Wchnschr. **38**: 437 (April 16) 1925.

6. Henius: Zur Dosierung des Novasurols, Therap. d. Gegenw. **63**: 398 (Oct.) 1922.

7. Keith, N. M.; Barrier, C. W., and Whelan, Mary: The Diuretic Action of Ammonium Chloride and Novasurol in Cases of Nephritis with Edema, J. A. M. A. **85**: 799 (Sept. 12) 1925.

8. Rowntree, L. G.; Keith, N. M., and Barrier, C. W.: Novasurol in the Treatment of Ascites in Hepatic Disease, J. A. M. A. **85**: 1187 (Oct. 17) 1925.

of age, sex, or etiologic type of heart disease. Those with evidence of renal disease were excluded. After a preliminary period of rest in bed without medication, digitalis was given in full dosage. As soon as the diuresis from that drug had ceased, or it was apparent that diuresis would not occur, merbaphen or theophylline was administered, the second of these diuretics being given after the effect of the first had ceased. The dose of digitalis was determined on the basis of body weight, 1.5 Gm. of the powdered leaf per hundred pounds of body weight being taken as the total required amount. This calculated total was given within a period of one or two days, and the digitalis effect maintained by a continued dosage of 0.2 Gm. a day for five days each week. Theophylline was given in doses of 0.3 Gm. (5 grains) three times daily for two days, and theobromine (not theobromine sodiosalicylate) in doses of 0.6 Gm. (10 grains) three times daily for two days. merbaphen on the other. That all patients who are to receive diuretics should first receive full doses of digitalis seems too apparent to require comment.

Chemical changes in the blood and urine have not been studied; they have received adequate attention from previous observers.[9]

Seventeen persons have received merbaphen under the conditions outlined above, and nine others under circumstances that will be indicated.

RESULTS

The results are indicated in some detail in table 1, and summarized in table 2. A few words of explanation are necessary concerning the terms employed. "Excellent response" indicates that there was conspicuous diuresis, the urinary volume being from 3,500 to 7,500 cc. in the twenty-four hours following the administration of the diuretic, with a reduction in body

TABLE 1.—*Results*

				Merbaphen			Theophylline			
Case	Age	Sex*	Diagnosis	Doses	Response	Loss of Weight	Courses	Response	Loss of Weight	Comment
1	52	♂	Arteriosclerotic heart disease; auricular fibrillation	3	Mod.	4-7-7	2	Exc.	9-17	
2	57	♂	Arteriosclerotic heart disease; coronary thrombosis	3†	Exc.‡	4-6-9	2	None	None	Tissue necrosis from merbaphen
3	62	♀	Arteriosclerotic heart disease; auricular fibrillation	3	Mod.§	12-8-8	3	Exc.	30-8-4	First dose of merbaphen after ammonium chloride
4	53	♂	Arteriosclerotis heart disease; auricular fibrillation	4	Exc.	14-16-13-16	4	None	None	2d and 4th merbaphen after ammonium chloride
5	60	♂	Arteriosclerotic heart disease; auricular fibrillation	6	Exc.	5-0-9-17-8-8	5	None	None	4th and 5th merbaphen after ammonium chloride
6	67	♂	Arteriosclerotic heart disease; auricular fibrillation	4	Exc.	17-19-11-18	5	None	None	Merbaphen only after ammonium chloride
7	53	♀	Arteriosclerotic heart disease; bundle branch block	3	None	None	2	Exc.	23-9	
8	54	♀	Arteriosclerotic heart disease; auricular fibrillation	1	None	None	3	Exc.	23-8-8	Bloody diarrhea after merbaphen
				4	None	None	6	None	None	Urea very effective
9	41	♂	Rheumatic heart disease; auricular fibrillation	3	None	None	2	Mod.#	4-8	Stomatitis after merbaphen
10	36	♀	Rheumatic heart disease; auricular fibrillation	2	None	None	2	Mod.#	10-0	
11	37	♀	Rheumatic heart disease; auricular fibrillation	2	Mod.	5-4	3	Exc.#	20-4-4	Stomatitis and tissue necrosis after merbaphen
12	48	♀	Rheumatic heart disease; auricular fibrillation	2	Mod.	4-4	4	Mod.#	0-0-13-5	Best response to euphyllin
13	25	♂	Rheumatic heart disease.....	2	None	None	4	None	None	Stomatitis from merbaphen
14	45	♂	Syphilitic heart disease.....	3	None	None	2	None	None	
15	45	♂	Syphilitic heart disease.....	2	Mod.	6-8	1	Mod.	7	
16	62	♂	Arteriosclerotic heart disease..	1	Mod.	6	3	Mod.#	10-0-0	
17	33	♀	Rheumatic heart disease; auricular fibrillation	1	None	None	2	None	None	Collapse after merbaphen

* In this column, ♂ indicates male; ♀, female.
† First dose of merbaphen given before digitalis.
‡ Response classified as excellent because patient was rendered edema free by merbaphen.
§ Response classified as moderate because patient was never rendered free from edema by merbaphen, and was twice made edema-free by theophylline. Theophylline given after merbaphen invariably caused a further loss of weight.
# Subsequently, no response to any medication.

Four patients received ammonium chloride for several days preceding their merbaphen; the dose employed was 6 Gm. daily. The results in these individuals are discussed below.

All patients were kept in bed throughout the period of study. The total fluid intake was restricted to 1,200 cc. daily, or as near that level as possible, and the urinary volume measured for each twenty-four hour period. In a few instances it was impossible to secure accurate measures of the urine because of incontinence or lack of cooperation on the part of patients; in these individuals, attention was directed chiefly to clinical observations as to disappearance of edema and to changes in body weight. The weight of each patient was determined daily.

It should be emphasized that no attempt has been made to distinguish between the effects of theophylline and theobromine, or between the effects of digitalis and either of these diuretics. The comparison, on the contrary, has been between digitalis plus theophylline or theobromine on the one hand, and digitalis plus weight of from 8 to 20 pounds (3.6 to 9 Kg.) in the same period. "Moderate response" is used to designate those instances in which there was definite, but not intense, diuresis, with a urinary output of from 2,000 to 3,500 cc., and a loss of from 4 to 8 pounds (1.8 to 3.6 Kg.). The term "no response" applies not only to those patients who failed to show any change, but also to those who had a very slight increase in fluid excretion and a loss of less than 2 pounds (0.9 Kg.).

Two patients (16 and 17) received only a single dose of merbaphen and are therefore regarded as somewhat inconclusive; they are not included in the analysis in table 2. It will be noted that the remaining fifteen patients appear as sixteen in that table, because one (patient 8) has been counted twice. In this patient the two courses of treatment were separated by an interval of a year, and the response to theophylline was quite different on the two occasions.

9. Crawford, J. H., and McIntosh, J. F.: Observations on the Use of Novasurol in Edema Due to Heart Failure, J. Clin. Investigation **1**: 333 (April) 1925. Other pertinent references will be found in this paper.

The figures indicating the results need little comment. It should be pointed out that the four subjects who showed an excellent response to merbaphen had all shown no diuresis whatever from repeated courses of theophylline. Of the five who responded well to theophylline, only two failed completely to show diuresis after merbaphen. It may be significant that the only

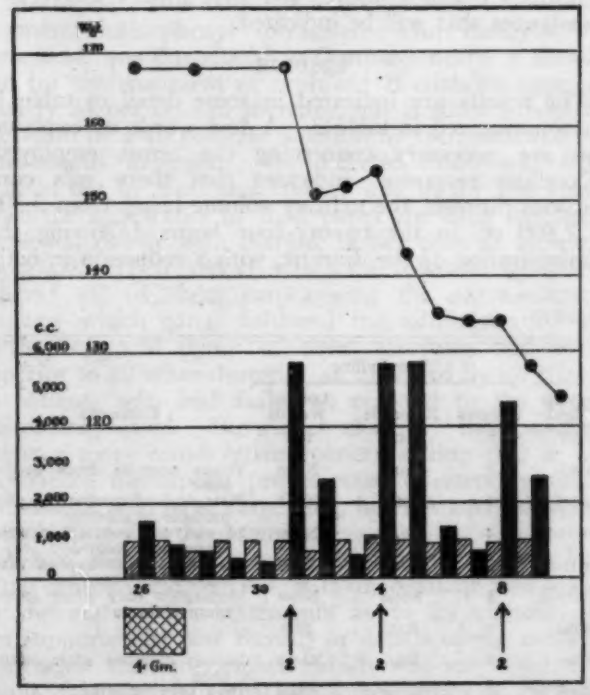

Chart 1 (case 6).—In the month preceding this chart, the patient had received three courses of theophylline, one of theobromine sodiosalicylate and one of urea (45 Gm. daily for two weeks). There was slight transient response to the first theophylline and the urea, but edema eventually increased. A final course of theobromine is shown on the chart, and three doses of merbaphen, 2 cc. each. The loss of weight after merbaphen was 17, 19 and 11 pounds (7.7, 8.6 and 5 Kg.), respectively. A fourth dose of merbaphen, not shown on the chart, caused great diuresis and a loss of 18 pounds (8.2 Kg.). Ammonium chloride was given throughout the period of merbaphen administration, 6 Gm. daily. Diuresis invariably occurs on the second day as well as the first. (In this and the succeeding charts, fluid intake is represented by cross-hatched columns, urinary volume by solid columns, and weight in pounds by solid dots. Figures below the columns refer to the day of the month. Merbaphen is indicated by arrows, theobromine by cross-hatched rectangles, and theophylline by stippled rectangles. Large doses of digitalis are shown by hollow rectangles; maintenance doses are not indicated, but were given in all cases.)

patients who exhibited entirely satisfactory reactions to merbaphen were all in the group of arteriosclerotic heart disease; those in the rheumatic and syphilitic groups responded far less well. The groups are too small, however, to permit any conclusions.

In view of the excellent results obtained by Rowntree [8] with the combination of ammonium chloride and merbaphen in patients with ascites due to hepatic disease, this method was employed in four of our patients (3, 4, 5 and 6). The dose of ammonium chloride used was 6 Gm. daily; it was administered for several days before merbaphen was given. One patient received it throughout the entire period covered by merbaphen administration; he had the most marked and sustained diuresis from merbaphen of any in the group. In the other three cases, merbaphen was given both with and without ammonium chloride. It is of interest that the diuresis following the combined treatment was invariably greater than that after merbaphen alone, although in case 4 the difference was slight. It was also noted that whereas the diuresis following merbaphen alone is usually complete within twenty-four hours, the diuresis after the combined treatment was often almost as pronounced on the second day as on the first (chart 1).

Nine patients not included in table 1 received single doses of merbaphen before digitalis had been administered; most of them received only 1 cc. Seven of the nine had a moderate diuresis, one an excellent diuresis, and one remained unchanged. Eight of them subsequently responded satisfactorily to digitalis alone or with theophylline; in every one of them, the response to the usual treatment was better than that to merbaphen.

TOXIC ACTIONS

The entire group of twenty-six is available for analysis from the standpoint of toxic side-actions of the mercurial preparation. The nature of the reaction, as it was observed in the first seventeen cases, is indicated in table 1. Of the entire group, four had moderately severe stomatitis and salivation; each of them received only 1 cc. of the drug. Three of these patients had excellent teeth and no pyorrhea; these three had more severe stomatitis than did the fourth, whose mouth was in very poor condition. Two patients had bloody diarrhea following the merbaphen; in both of them, opium was required for the control of the evacuations. In three instances (in two patients), sterile abscesses due to tissue necrosis developed at the site of intramuscular injection of the drug. These abscesses caused extreme discomfort and slight fever; they were incised and found to be in the muscle, and not, as in the case of Crawford and McIntosh [9] in the subcutaneous tissue. Following this experience, the preparation was given only intravenously, and no local ill effects were noted. One patient went into a condition of alarming collapse shortly after receiving 1 cc. of merbaphen, and appeared to be at the point of death for several hours, but subsequently recovered. Of the eight patients who exhibited these undesirable effects, only one had any significant diuresis.

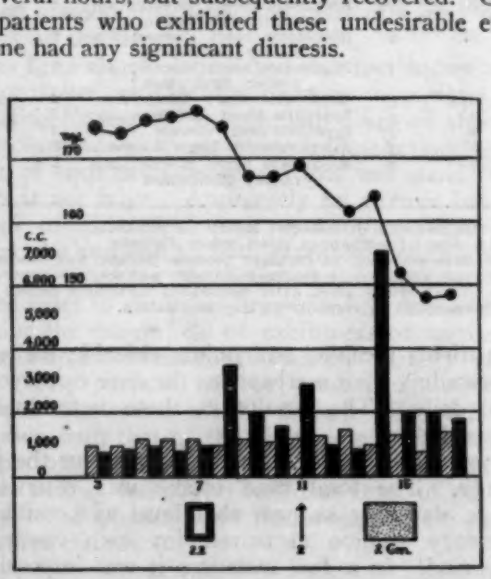

Chart 2 (case 1).—Complete record is not shown. Digitalis, 2.2 Gm. (hollow rectangle), on fourth day after entry, with moderate diuresis for three days and loss of 10 pounds (4.5 Kg.). Merbaphen four days later, with less marked diuresis and loss of 7 pounds (3.2 Kg.). Theophylline three days later, with excellent diuresis and loss of 17 pounds (7.7 Kg.).

COMMENT

It is evident that if one diuretic drug proves effective after adequate doses of another have completely failed, the second may safely be pronounced superior in that one instance. If both drugs cause diuresis, however, conclusions as to their relative potency may safely be drawn only if the second elicits a greater response than

did the first; if the diuresis from the second drug is less than that from the first, it may be due to the fact that there was less edema fluid available for removal. In other words, the results might have been reversed if the order of administration had been reversed. This difficulty in the interpretation of results may be surmounted in two ways: by accepting only cases in which

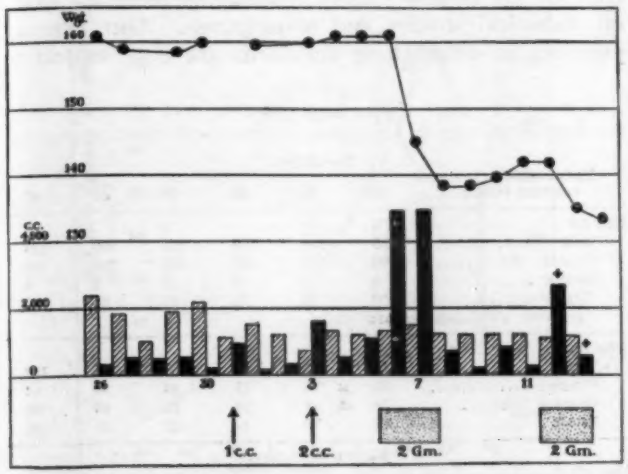

Chart 3 (case 7).—Digitalis not shown on chart; it was given to the point of toxic symptoms without effect on heart rate or edema. Two doses of merbaphen without significant effect. Excellent response to theophylline, with loss of 23 and 9 pounds (10.4 and 4.1 Kg.), respectively, after two courses. Urinary volume after second theophylline inaccurate, as patient was incontinent.

the second drug proved the more effective, or by allowing patients to reaccumulate their edema to the original level (as determined by body weight) before administering the second diuretic. In the present study, two patients were allowed to reaccumulate edema to the same point after each period of diuresis; of the remaining thirteen, all who showed a different response to the two types of diuretics responded best to the one that was administered last (charts 1, 2 and 3). It is felt, therefore that conclusions may be drawn with considerable assurance.

So far as actual figures are concerned (table 2), there is little to choose between merbaphen and theophylline. Each drug failed to cause diuresis in seven patients, and was partially or entirely successful in nine. It is pertinent to reemphasize, however, that all the excellent results from merbaphen were obtained in patients who had shown no diuresis from theophylline, while in only two did theophylline cause adequate diuresis after merbaphen had failed. In this respect the difference is in favor of the mercurial preparation, but the group is too small to make the observation of value.

TABLE 2.—(*Summary of Table 1*)

	Theophylline			Merbaphen		
	Exc.	Mod.	None	Exc.	Mod.	None
Arteriosclerotic heart disease*	4	..	5	4	2	3
Rheumatic heart disease.....	1	3	1	..	2	3
Syphilitic heart disease.....	..	1	1	..	1	1
Totals.....	5	4	7	4	5	7

* Case 8 counted twice.

The slight apparent superiority of merbaphen is offset to some extent by its toxic side actions. These undesirable effects have been witnessed in the majority of instances after doses of only 1 cc. Abscesses from tissue necrosis may be avoided by administering the drug intravenously, but apparently there is no adequate safeguard against colitis and collapse. It is our feeling that these last-mentioned complications are the only important ones; stomatitis and salivation are seldom distressing. In only two patients of the twenty-six were the toxic effects regarded as serious enough to prevent all further administration of merbaphen; the possibility of such effects should probably not be considered a contraindication to its administration to patients who have failed to obtain relief from the usual therapeutic measures.

That eight of the nine excellent results were obtained in patients with arteriosclerotic heart disease is in accord with the results observed after other forms of treatment; it is this group which responds best to practically all forms of treatment. The one patient with rheumatic heart disease who improved greatly after theophylline did so only once; she subsequently developed extreme anasarca despite the frequent administration of all available diuretics.

There can be no question that merbaphen sometimes proves an extraordinarily efficient diuretic after others have failed. In our opinion, its reputed vast superiority to the drugs formerly used has been exaggerated by the reporting of uncontrolled cases and by the use of inadequate doses of theophylline and theobromine. That it constitutes a welcome addition to the small group of diuretics, few will deny. It possesses certain disadvantages because of its mercurial content, and for that reason should probably be employed only after the xanthine diuretics have been given a thorough trial.

SUMMARY AND CONCLUSIONS

Merbaphen has been administered in doses of 1 or 2 cc. by intramuscular or intravenous injection to twenty-six patients with advanced congestive heart failure. Seventeen of these received adequate doses of digitalis and theophylline or theobromine; fifteen had repeated doses of both merbaphen and theophylline over a long period.

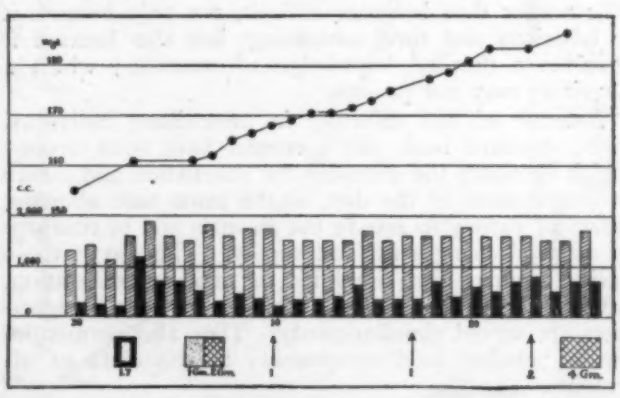

Chart 4 (case 14).—Digitalis, 1.7 Gm. (hollow rectangle) after fourteen days of rest alone; practically no effect. One day of theophylline and one of theobromine caused no diuresis. Three doses of merbaphen and a final course of theobromine had no effect whatever. Weight increased from 155 to 187 pounds (70 to 85 Kg.) during the period of treatment. Maintenance dose of digitalis not shown on chart.

Merbaphen and theophylline each failed to cause diuresis in seven instances. Of the seven who failed to respond to theophylline, four subsequently responded very well to merbaphen. Of the seven merbaphen failures, two subsequently had excellent diuresis from theophylline. Only three patients failed to respond to both.

Theophylline caused intense diuresis in a total of five patients, merbaphen in four. Eight of the nine excellent results were obtained in patients with arteriosclerotic heart disease.

Ammonium chloride was used in conjunction with merbaphen in four patients. In three, the combination was more effective than merbaphen alone; in the fourth, a comparison was not made.

Merbaphen alone was given to nine patients before they had received digitalis. There was moderate diuresis in seven, excellent in one, and no change whatever in one. Eight of the nine subsequently obtained excellent diuresis from digitalis alone or in combination with theophylline. In every instance, the response to the usual treatment was better than that to merbaphen.

Toxic effects of merbaphen were observed in eight patients of the twenty-six: stomatitis and salivation in four, bloody diarrhea in two, sterile abscesses in two (after intramuscular injection), and collapse in one. Only one patient exhibited more than one of the foregoing effects.

While merbaphen occasionally proves a powerful diuretic, it should probably be employed only in those patients who have failed to obtain relief from theophylline or theobromine.

THE USE OF STANDARD DIET FORMULAS IN THE CONTROL OF JUVENILE DIABETES MELLITUS*

J. D. BOYD, M.D.
IOWA CITY

Control of diabetes mellitus requires that the food of the patient be strictly prescribed, both as to nature and as to amount. The food requirements of the child, in contrast with those of the adult, change progressively with growth. The prescribing of individual diets for diabetic children involves the calculation and assembly of a large number of menus to suit the varying needs. The matter thus becomes difficult, not only because it is laborious and time consuming, but also because it involves a detailed knowledge of nutrition, which a physician may not possess.

Because of this difficulty in prescribing individual diets, standard basic diet formulas have been devised which eliminate the necessity for calculation and insure a completeness of the diet, at the same time allowing sufficient variety to satisfy the appetite and to conform to seasonal changes in food supply. The use of these basic formulas also simplifies the diet administration, particularly in institutions where numerous weighed diets are served simultaneously. They also permit the use of similar food components in the diets of all patients.

In the selection of the individual diet from the basic formulas, the body length or height of the child is used as the guide. A table or plotted curve (chart 1) is so arranged that the protein allowance may be found corresponding to the body length. Then, by referring to the diets, that column is chosen which will furnish approximately the stated amount of protein. In the column chosen is tabulated a complete diet in which all the food components are in proper proportion and adequate amount, as shown in the accompanying table.

The prescribing of a diet thus becomes an exceedingly simple matter. This procedure has had a year of practical application and has proved very satisfactory.

At present our conceptions concerning the growth, development and nutritional requirements of normal children are largely empiric. Many of them are based on statistical studies and assumptions. Our primary premises in establishing standards are thus subject to criticism. However, for want of more exact information, we are justified in accepting these standards for the present as a basis for observation. We have assumed that standards for development and nutrition are the same for diabetic as for normal children.

In estimating a child's nutritional requirements, the degree of physiologic development and activity must be used as a guide. Height is a better criterion of development than is weight or age, as may be shown by correlation of tables of average height and weight for children of different age groups.[1] When the average weight for each unit of height is plotted (chart 2),

*Specimen Diet**

Breakfast						
Total daily protein content (Gm.)	28	31	35	38	42	46
Use all						
Milk	120	140	150	155	160	165
Cream, 18%	100	110	130	130	140	145
Butter	0	1	1	3	3	5
Egg	20	20	28	32	35	40
Cod liver oil—1 teaspoonful daily						
One only						
Tomato	45	45	45	80	115	150
Orange	15	15	15	28	40	52
Orange juice	18	18	18	32	46	60
Apple	12	12	12	22	32	42
Dinner or Supper						
Use all						
Milk	120	140	150	155	160	165
Cream, 18%	100	110	130	135	140	145
Butter	4	5	4	6	8	10
One only						
Egg	20	20	28	33	28	43
Beef	13	13	18	31	24	27
and butter	1	1	2	2	3	3
Chicken	13	13	18	31	24	27
and butter	2	2	3	3	4	4
Fish	13	13	17	29	23	26
and butter	2	2	3	3	3	4
Canned salmon	13	13	17	29	23	26
and butter	0	0	0	1	1	2
One only						
Tomato	45	45	45	55	65	75
Spinach	48	48	48	60	72	84
String beans	48	48	48	59	70	81
Turnips	22	22	22	27	32	37
Peas	17	17	17	21	25	29
Carrots	18	18	18	23	28	33
Cabbage	...	...	11	17	23	28
Onions	...	...	9	18	28	31
Squash	...	...	10	20	30	40
One only						
Orange juice	...	...	...	...	12	18
Orange	...	...	...	...	11	16
Fresh peaches	...	...	...	...	14	21
Fresh pears	...	...	...	...	9	14
Apple	...	...	...	...	9	14

In addition to these above diets, 20 Gm. of lettuce or celery may be used twice daily if desired.

* Each daily diet will furnish the amount of protein indicated at the head of the respective column, together with carbohydrate and fat in the ration P : C : F :: 7 : 9 : 21. The fatty acid : glucose ratio is 1½ : 1. A complete series of these diets appeared in the Journal of the American Dietetic Association, June, 1926.

* From the Department of Pediatrics, State University of Iowa, College of Medicine.

* Read before the Section on Diseases of Children at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Values from Baldwin, Wood and Woodbury, supplement to Mother and Child, July, 1923.

the curves for boys and girls are almost identical up to the time of adolescence. Thus we find a height standard quite suitable to use as a basis of diet calculation.

Calorimetric studies have furnished data as to the basal energy requirements of children. From these

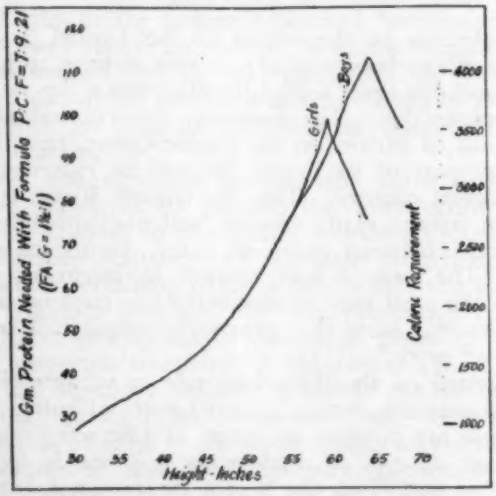

Chart 1.—Caloric requirements of active children expressed in terms of height, together with protein allowance necessary to supply this caloric intake when ratio of protein: carbohydrate: fat is 7:9:21. Resulting fatty acid: glucose ratio will be 1½:1.

values, various estimates have been made of the total calories needed to satisfy the requirements of maintenance, growth and activity. Holt and Fales[2] have made such estimates from the observed food intake of a large group of children in apparent health. These data expressed in terms of height are shown in chart 2, and have been accepted as a basis for calculation in this study.

The protein requirements of children have not been well established. It is recognized that the amount necessary depends on the adequacy of the diet in other respects. The amount needed is lessened when the caloric intake is sufficient and when food proteins are similar in nature to those of the body. The amount necessary to insure normal development has been estimated by various authorities[3] to be from 2 to 4 Gm. for each kilogram of body weight daily, the requirements being greater in infancy than in later childhood. In our standard diet formulas we have provided a minimum of 1 Gm. of protein for each pound of theoretical body weight as calculated from the patient's height.

In designing a diabetic diet, the caloric and protein requirements must be met in such a way that the carbohydrate intake is kept at a minimum. This necessitates the use of fat in considerable quantities. In order to prevent the excess formation of ketone bodies, the potential fatty acid: glucose ratio should be kept within safe limits. It has been demonstrated that in adults this ratio may equal or exceed 1.5 Gm. of potential fatty acid to each gram of potential glucose. Numerous combinations of protein, carbohydrate and fat will furnish a fatty acid: glucose ratio of 1½: 1. One of these, consisting of these foodstuffs in the relative proportions of 7: 9: 21, respectively, will also supply the theoretical caloric and protein requirements of an active child, if prescribed in proper quantities. We have found this ratio of foodstuffs to be safe and satisfactory in children and have adopted it as a basis for all our food formulas.

The quantity of mineral salts and vitamins required by children has never been accurately determined, though the necessity for these substances in adequate amounts is well recognized. Many diabetes diets have been criticized for their low content of calcium, phosphorus or iron, and some of them have been obviously deficient in minerals and vitamins. In constructing our dietary formulas, these substances have been included in considerable amounts. Aside from clinical observation, it is not possible to state the degree of adequacy of these substances in our diets, but the patients receive them in larger amounts than does the average normal child on the usual diet.

If we may grant that the nutritional requirements of a child are proportional to the physiologic development and accept the standards as outlined above, then it should be possible to express these various factors in a relationship or formula which could be used for any child by adjusting the quantity to correspond to the degree of development, keeping the ratio of constituents constant. These premises constitute the scientific justification for the use of these formulas.

The clinical justification for their use has been rather obvious. Our patients have ranged from 2 to 15 years in age, and some have been the subjects of detailed metabolic study. Determination of the urinary nitrogen excretion offers no evidence that the protein allowance is deficient. Once a patient has been brought

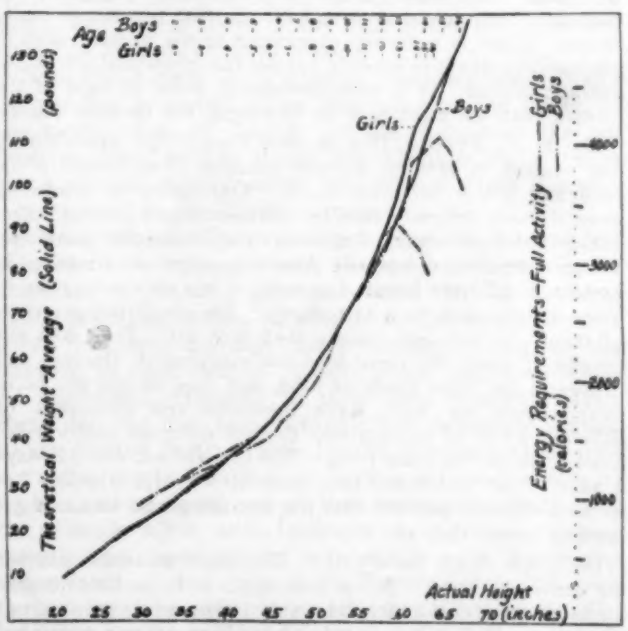

Chart 2.—Correlation of actual height with theoretical average weight, age and caloric requirements for full activity, for boys and girls from early infancy through early adolescence.

under control, no appreciable amounts of acetone bodies are excreted except in the presence of infection, hypoglycemia or hyperglycemia. Blood calcium and phosphorus determinations have revealed normal values. More detailed metabolic studies will be reported at another time. When a patient's activity is limited for a time, it is sometimes necessary to reduce the caloric intake proportionately. This can be done most readily

2. Holt, L. E., and Fales, H. L.: Food Requirements of Children, Am. J. Dis. Child. **21**: 1 (Jan.) 1921.
3. Boyd, Gladys L.: Treatment of Diabetes in Children, Am. J. Dis. Child. **29**: 329 (March) 1925.

by reducing the fat of the diet, thus avoiding appreciable disturbance of the insulin dosage.

In the majority of instances, the appetite has been similar to that of the normal child. The patients appear healthy and vigorous, more so than many nondiabetic children presumably well cared for. The degree of physiologic development on these diets has been proportional to or in advance of the chronological age.

It will require longer periods of observation before final conclusions may be drawn safely as to the adequacy of this system. It has seemed satisfactory from the standpoint of the patient's progress; from an administrative point of view it has greatly lessened the labor of diet calculation, and has permitted a comparative study of a large group of children of different ages on equivalent diets.

ABSTRACT OF DISCUSSION

DR. W. H. OLMSTED, St. Louis: The most important feature of the treatment of diabetes is the method pursued for the education of the patient and the member of his family responsible for the preparation of his food. The method of education to be adopted depends on a careful study of the mental equipment of the patient, and further, in case of child or man, that of the mother, wife, sister or servant who is responsible for the preparation of the food. Too often the plan of education is far above the mental equipment of the patient. For instance, we speak of 5, 10 and 20 per cent vegetables. Do you know that one must have had a sixth grade education to understand what one means by percentage? How many of our dispensary diabetic patients have had the equivalent of a sixth grade education? In St. Louis, not more than half of them. Diabetic patients should be graded, and educated by methods which their educational equipment allows them to grasp. Dr. Boyd's paper fits the mental equipment of mothers. Very few women understand what percentage really means. What is everyday experience to the average man in his business world is entirely outside the household life of the average mother. It is with the mental point of view of the woman that we must deal in educating the diabetic family.

DR. M. L. TURNER, Des Moines, Iowa: We can simplify our method of feeding diabetic patients if we simplify the food and get a balanced ration. Overeating is producing more diabetic difficulty than the different kinds of food taken. We do not need sugar. Sugar was not known 500 years ago. When Columbus discovered America, sugar was selling in London at $275 per hundred pounds. They were not eating it. They should stick to a few things. They will not get tired of them. If they get hungry they will eat. They will not overeat if given the same food for every meal. Horses and cattle eat but three kinds of food, and they do not tire of it. Why should we have these hundreds and thousands of different kinds of preparations to feed different individuals? Feed them all the same thing. The Chinese eat rice 365 days a year. The Scotchman eats oatmeal 365 days a year. Let us feed diabetic patients just the one thing and let them get hungry before they eat it.

DR. J. D. BOYD, Iowa City: The question arises whether we can make criteria for a safe diet. It is possible to give an inadequate diet and not be able to recognize the fact. It has been said that breast fed infants have greater resistance to infection than those artificially fed. This and many other nonapparent factors must be appreciated in evaluating any nutritional system. With this in view, diets should be made as fool-proof as possible. Some work that I have been doing and expect to report on later has indicated that protein requirements may be much increased in some forms of inanition. These children, patients with tuberculous osteomyelitis, failed to gain on the usual protein intake, and required liberal allowances of protein to permit satisfactory nitrogen balance. The latter being obtained, growth resulted. We should not be dogmatic as to constituents of a diet, but at all times try to supply all necessary factors in adequate amounts.

PROTECTIVE HEALTH MEASURES ON THE UNITED STATES-MEXICO BORDER *

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EL PASO, TEXAS

Protection of the health of the United States on our southern border seems, at first sight, a stupendous task and one beset with difficulties which are well nigh insurmountable. The boundary line, extending from the Gulf of Mexico to the Pacific Ocean, runs for the greater part of its length through an extremely wild and desert country. The Rio Grande River, a meandering stream, easily crossed, and unguarded for long distances between ports of entry, forms its eastern half. The western half, marked by monuments only, is for the most part an imaginary line running through the desert. It is also practically unguarded between ports of entry.

Situated on the American side at various cities or settlements are sixteen legalized ports of entry. Eight of these are at cities or towns of fair size; seven are at small villages or settlements and one is merely a "port of entry" on the desert far removed from any human habitation. Five have direct connection by rail with the interior of Mexico, while the remaining eleven have more or less direct communication with the interior of that country, depending on their proximity to railroads or other routes of travel.

On this sparsely settled border, with legal ports of entry far apart, illegal entries are the rule. Many thousand Mexican laborers yearly enter the United States surreptitiously, without medical inspection of any kind. It is evident, then, that we cannot depend solely on federal quarantine and immigration medical inspection at ports of entry for our health protective measures. It is also evident that the diseases prevalent in Mexico will necessarily be those most common along the border, and we must be prepared to cope with them if introduced into the United States.

Conditions differ from those on the Canadian border. We have here to contend with an alien race: one with a different language, different customs, different moral standards and different diseases. On this border we are dealing with a people coming to the United States principally as laborers, from all parts of Mexico, the lowlands of the coast and the high plateaus alike. We are, as to distance, within the incubation period of diseases peculiar to those localities (yellow fever and typhus, for example), while the ever prevalent smallpox of Mexico, in all its variations, demands constant vigilance.

The national quarantine is concerned with the major quarantinable diseases—cholera, plague, yellow fever, smallpox, typhus fever, leprosy and anthrax. The medical inspection of aliens carried out by authority of the Immigration Act, which is comprehensive, covers communicable and other diseases which prohibit entry into the United States in the case of aliens. There is, of course, no law which excludes an American citizen from his country. The interstate quarantine regulations of the United States govern the travel of persons suffering with quarantinable diseases (major and minor), as well as certain other contagions and infec-

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

tions, which may be introduced into the United States or arise therein. State and local health agencies (county or city), by the enforcement of their sanitary codes, prevent the local spread of such diseases.

The adoption of the Pan-American Sanitary Code by the signatory countries of the Western Hemisphere is also of great value to the United States as a health measure. The purpose of the code is to protect the public health of the nations concerned "particularly to the end that effective cooperative international measures may be applied for the prevention of the international spread of the communicable infections of human beings and to facilitate international commerce and communication."

Briefly, the signatory governments agree to cooperate in measures to prevent the introduction and spread of disease; to standardize and collect morbidity and mortality statistics; to stimulate interchange of information pertaining to the public health, and to correlate measures employed for the prevention of the introduction and spread of disease at places of entry to their respective countries. As Mexico and the United States are signatory nations, it will be readily understood that, through the operation of the code, much good that is of value to the public health may accrue to both countries, and this especially applies to our southern border.

On this border we are particularly interested, as far as the major quarantinable diseases are concerned, in the danger from smallpox, yellow fever and typhus. The others are not, at this time, a menace. The possibilities of plague, however, are given due consideration, for at one time or another it has approached both ends of the border. It would be extremely difficult, at this time and with the precautions now observed, for cholera to reach this section of the country. Leprosy and anthrax present no difficulties, though leprosy is frequently encountered.

The minor contagious diseases are not more prevalent on this border than elsewhere in the United States. During an epidemic of any of these in Mexico, increased precautions at local ports of entry on this side and full cooperation with the Mexican health authorities usually suffice as far as that particular disease and locality are concerned. What concerns us most, as to both major and minor contagious diseases, is the danger from illegal entries. It is at least possible, at the regular ports of entry, to detect disease conditions when present, though it will be understood that some diseases in the incubation stage may be passed, even at ports of entry, on regular medical inspection. As a rule, however, we know whence such persons come and have knowledge of the health of these localities, thus minimizing this danger. Of the illegal entrant, on the contrary, we know nothing until he is taken sick and becomes, perhaps, a charge on the community.

TYPHUS FEVER

At various times typhus fever, endemic in Mexico since the Spanish conquest, has blazed forth into virulent epidemics. During 1915, 1916 and 1917, such an epidemic spread all through Mexico and to the border, finally invading the United States. There were about 150 cases in Texas, of which 120 occurred in El Paso. The greater part of the El Paso cases were in Mexicans of the laboring class, though ten Americans were striken. Among the latter there were five deaths, including the city health officer of El Paso, an inspector of the United States Immigration Service, and a quarantine attendant of the United States Public Health Service. The mortality was high among the Americans, 50 per cent. Among the Mexicans it was lower, probably about 20 per cent. The disease did not spread to the American population, such Americans as were stricken being those whose duties exposed them to vermin infested contacts or persons sick with typhus fever. It was directly traceable to its origin in Mexico, the persons suffering with it having entered the United States during the incubation period of the disease. During the epidemic, cases were reported from Arizona, California, Colorado, New Mexico and Iowa.

Before this time the principal reliance against the introduction of typhus fever into the United States from Mexico was medical inspection and the return of vermin infested persons. Subsequently, delousing plants were established at all ports of entry, and disinfestation of all persons not obviously free of vermin has been required.

Typhus fever will sift into the United States whenever an epidemic of sufficient magnitude brings it to the border. As has been seen, this may occur through regular ports of entry, as well as through illegal entries. Detention for the twelve day incubation period in the case of legal entrants is obviously impossible, while the illegal entrant is, perhaps, not found until incapacitated by sickness.

Typhus in a mild form (Brill's disease) has been prevalent in the lower Rio Grande Valley in Texas for the last three years. In this form it has been a disease of the summer months—quite different from the more virulent form. In the cases studied by Maxcy of the United States Public Health Service, it was not possible to trace infestation with the body louse, though the head louse could not be ruled out entirely. In many cases, louse infestation of any kind could not be traced either in the sick or the contacts.

Sporadic typhus of a greater virulence than Brill's disease has occurred, from time to time, in many of the larger cities of Texas. While this form has not been reported in the lower Rio Grande Valley, it is the common variety along the border from Laredo, Texas, west to the Pacific Ocean.

During the El Paso epidemic, one of the greatest sources of the spread of the disease was found in the shipment of Mexican laborers out of the city by labor agencies and railroads. Owing to conditions in Mexico, these laborers, coming from various points in the interior of the United States, were reshipped from El Paso, not returning to their own country. They therefore did not pass through the delousing station of the United States Public Health Service and, as they were frequently found to be vermin infested, a case of typhus among them was all that was necessary to keep the disease alive and facilitate its spread. Consequently, an arrangement was made with the health department of the city of El Paso whereby all such persons were brought to the quarantine station for disinfestation. Later, the labor agencies and the railroads began delousing these laborers and installing their own plants. The plants were supervised by an officer of the United States Public Health Service, and no Mexican laborers were permitted to travel out of El Paso without disinfestation. The city also began a systematic house to house delousing campaign, and the typhus cases quickly diminished. By the end of 1917, the epidemic was practically ended.

The lesson taught by this experience with typhus was a costly one, and it emphasized the necessity of coopera-

tion among all health agencies concerned. The federal government, the state, the county and the city, working together, quickly ended an epidemic which, without concerted action, could not have been so readily controlled.

SMALLPOX

Smallpox, like typhus fever, is in its endemic form a lighter disease than the imported variety. In both diseases, it is notable that different strains of virus exist. In a given community, cases from a first infection may be light; however, this is no index of the virulence of later cases. Smallpox has been a frequent visitor in the past along the border. Today it is rare, and those cases which do occur can no longer be traced to Mexico, but more commonly arise within our own country. It is not to be inferred that smallpox is not prevalent in Mexico, for it is; but it has always been, in that country, principally a disease of childhood—as common as measles is with us. This is as it was in the beginning, since, until the advent of vaccination against it, smallpox was a disease of childhood. The neglect of vaccination in infancy, in Mexico, accounts for its great prevalence among children in that country, just as neglect of revaccination in our own country makes it a disease of adult life. With us, vaccination is practiced in infancy and later neglected. This is unfortunate, for it has been abundantly proved that smallpox gains no footing in those countries in which vaccination and revaccination are systematically practiced.

Compulsory vaccination against smallpox on entering school is the rule along this border in the United States. It is owing to this fact that the disease is under control. The adult population of both sides of the line is well protected since all incoming travelers must be vaccinated, show evidence of a recent vaccination or have had the disease. This applies to Americans who have crossed into Mexico as well as aliens. In evidence of what may be done to control smallpox, the city of El Paso is a good example. Compulsory vaccination of school children had been enforced by regulation, so far as possible, for some years. However, since conscientious objectors could not be compelled to submit to this ruling of the health department, an ordiance was passed by the city council in 1923, making vaccination of school children compulsory. No case of smallpox has been reported in the city for more than two years. What has been done at El Paso may be accomplished elsewhere; in fact, this measure is now effective in nearly all American cities on the Mexican border. It would avail little toward the suppression of smallpox, carefully as we vaccinate incoming travelers against it, without the full cooperation of the state and local health departments.

YELLOW FEVER

As is well known, yellow fever has invaded the United States frequently in times past. As the border has had such visitations and as the vector of the disease, the *Aedes aegypti* mosquito, is present practically along its entire length, yellow fever is a menace when prevalent in Mexico. Fortunately there have been no cases reported from that country recently, and we have good reason to hope that it has disappeared from the North American continent permanently.

Since the border is well within six days' travel of those places in Mexico where it has recrudesced from time to time (Tampico and vicinity), yellow fever has been a potential danger, especially to Texas. In certain areas along the eastern border, the United States Public Health Service, during the last four years, has been carrying on mosquito control measures to prevent its spread, should it be introduced. With cooperation from state and local health departments the work has been entirely successful, the object being to keep the *Aedes aegypti* index down to the safety point. It is impossible in the communities being worked to do only *Aedes* control, for, unless we make an impression on the residents of a given district, they grow apathetic. Consequently general mosquito control, as far as possible, has been undertaken but always with the main objective in mind. No dengue fever has been reported in the areas worked during the last two years. Whether malaria is to become a problem in the lower Rio Grande Valley remains undecided, but it undoubtedly requires investigation and study.

NEED OF FEDERAL, STATE AND LOCAL COOPERATION

Since we realize that not only quarantinable diseases but also diseases and defects covered by the Immigration Act may be introduced into the United States without detection at the time of entry, our efforts must be directed toward control and prevention of the spread of such diseases after entry. While we should not relax in any particular the careful inspections now in force at authorized ports of entry, we must not forget that many aliens enter without inspection of any kind. These persons constitute a menace to public health in the United States, and the possibility of the introduction from this source of major quarantinable diseases, to say nothing of the minor contagious diseases, has already been mentioned and must always be borne in mind.

We should remember, however, that smallpox, plague, typhus fever, typhoid fever, diphtheria and many other infections have existed for ages and still exist in spite of knowledge of the means of their prevention. Also they are, and have been, for a long time present in the United States, and with the possible exception of typhus they do not come to us from Mexico.

There are, of course, certain diseases common to Mexico which require careful inspection in order to detect them and prevent their admission at ports of entry. Trachoma and favus are not uncommon on the border; nor are leprosy, tuberculosis and certain other diseases which are excludable under the Immigration Act. The list is too long to recite here, but mainly they are not in any sense a menace to the health of the United States. They are, as a rule, readily detected and are preventable or amenable to treatment.

By far the greater part of our immigrants from Mexico consist of the poorer classes; and, as their standards of living and conceptions of hygiene are low, they do not make a desirable addition to our population, either rural or urban. However, they may be controlled and taught. We find, though, that they lapse from hygienic teachings as rapidly as they assimilate them, so that constant supervision is necessary. These facts have been demonstrated time and again when we have had to put on an intensive campaign to delouse for typhus or vaccinate against smallpox, and they are now being demonstrated in those localities in which mosquito control work is being undertaken.

In the final analysis, it is evident that the best solution of the health problems that confront us is complete cooperation between the federal government and the state, county and municipal authorities. If we have

certain diseases on this border, even if such diseases are imported from Mexico, they must, from the very nature of things, be dealt with as local problems, and state and local health authorities should be prepared for such contingencies.

321 Mills Building.

ABSTRACT OF DISCUSSION

DR. F. P. MILLER, El Paso, Texas: From Brownsville to El Paso and from El Paso to San Diego are no short distances, and the vast extent of territory that Dr. Tappan has to cover in his work will readily be realized. It will also be realized how easy it is for the illegal entrant to be a source of menace and danger. The cities he speaks of are largely like those in the song—simply to make the time table or the map look good, and it is either due to this natural protection of long and magnificent distances or to the efficient work of the few persons whom the government has assigned to this work that these protective measures are in effect. Under the circumstances, they have done remarkably well. The Indian races that have inhabited this border for centuries have had epidemics of cholera, until comparatively recent years, to such an extent that it decimated their population and required that they move their cities often. That was their method of dealing with this problem. Fortunately, these people are not obsessed with or possessed of the higher types of civilization. They believe readily what they see in the way of disease results, in reference to smallpox especially. They are not handicapped by conscientious objections, and they are not trying to solve the unsolvable. It is easier to demonstrate to them the value of the vaccine for preventing smallpox than it is for us to realize that the Mexican population readily submits to vaccination without raising much objection; and it is true that the quarantine station for smallpox in El Paso is closed and has been since the ordinance mentioned. Typhus fever has been an expensive problem to us. My acquaintance with it began with the Madero revolution, in which the federal army was left without physicians, abandoned by their officers, and came up to the insurrecto forces. We found sixteen or eighteen cases in one of the barracks at that time. Those who knew of the farce of the state trying to do this line of work were ready and eager to turn it over to the public health service, and they have managed it very efficiently ever since. One other condition that Dr. Tappan did not mention is Malta fever. This came across the border from Mexico below Sierra Blanca. We found three typical cases. From one case we were able to isolate the organisms and produce an autogenous vaccine. The case cleared up promptly. The other two cases were traced, and similar methods proved of value. The lepers are able to cross one day, we deport them, and they are able to recross another day because it is impossible to patrol this large district and they do not mind the little inconvenience of being sent back to Mexico. Along the border an active hearty cooperation exists between our state health officer, the various county and city health officers and the public service.

DR. MALONE DUGGAN, Harlingen, Texas: Dr. Tappan has presented this question very fully, but I would emphasize one point, which, in my opinion, is the solution to the whole proposition. It is a question that equally involves local, state and national government. This being the case, the most efficient regulation would be by the establishment of whole-time county health units along the border, supported by the county, state and U. S. Public Health Service. At the present time there are only three such units. The question of typhus fever is important from a public health standpoint, and consequently should have proper attention; but so far as it affects the lower Rio Grande border it is not a serious problem. The mild form of the disease is endemic in this section and has never given any alarm. As for malaria and yellow fever, the local conditions could not be more favorable. We are much indebted to the U. S. Public Health Service for the very efficient manner in which the yellow fever mosquito problem has been handled, but I should like to have some competent epidemiologist explain why we do not have more malaria.

DR. OSCAR DOWLING, Shreveport, La.: Several years ago a man with leprosy came into Louisiana from Colombia. There was no evidence that he had leprosy at the time he passed the quarantine station. It was discovered after he consulted a dermatologist. We had a good deal of trouble in handling that case, and finally the man would have been deported but for the fact that he was willing to return to Colombia. I mention this to show how easy it is sometimes for these communicable diseases to get by the quarantine stations even when the examination is considered completely thorough. I do not know why we can not have regulations requiring that all school children should be vaccinated against smallpox before they are permitted to enter the public, parochial or private schools. We have had a great deal of trouble in Louisiana, and all have probably heard of the difficulties under which they are working in Dallas at this time because of the opposition that has arisen on the part of the Christian scientists. Dr. Sappington and others of his department have been doing excellent work, and I hope they will be successful in convincing the people of the need of this means of prevention.

There is an interesting story told of the town of Santos. Some years ago the ships announced that they were going to quit calling there on account of so much sickness. The result was that the chamber of commerce of Santos got busy. They paved the streets, brought water from the mountains, and put in electric lights and gas in all the homes. When I was there, there was not a home in Santos, among the rich or the very poor, that did not have a telephone, electric lights, hot and cold water, and, one might say, all the modern conveniences. I accepted the information with a good deal of doubt, and I was answered that at the expense of the city I could go to any house, or to as many houses as I might wish, and make my own investigation. I made a few calls to homes where I suspected that they did not have all the conveniences, and to my great surprise I found that they had been provided. Santos has grown to be a very prosperous city, and it is doing one of the largest export businesses of any of the countries on the east or west coast of South America. I cite this merely for what it may be worth. If they can do that in Santos, why can't we do it in all the towns of the United States?

DR. L. H. MARTIN, Fort Worth, Texas: The question of control of communicable diseases as a national problem has not presented very much of a problem in Texas with the aliens themselves. Most of our communicable diseases are traceable more to our own people than they are to Mexicans. Along the border itself there is a probability that they would get over in a period before the Mexican infectivity is over, or the period of incubation, but by the time they reached a larger portion of the rest of the state, especially this far north, they have passed this period of infectivity, or period of incubation, and we have very few problems of that nature now. We are having smallpox, scarlet fever, diphtheria and things of that kind, but none are traceable to the Mexican population. I am not very familiar with conditions on the border now. Typhus fever has been a problem, but as to whether or not it was due to the foreign population I cannot say. The control of communicable diseases, as Dr. Tappan says, has been primarily due to the cooperation of the local authorities, state officials and the Public Health Service. They are correlating this work so that all agencies are working in the same direction without any loss of energy.

DR. H. O. SAPPINGTON, Austin, Texas: We have in Texas a different proposition than what most states have. We have about 400 miles of gulf coast line and 800 miles of Rio Grande river line, with a foreign country the other side of the river. The United States government took over the border quarantine several years ago, and the splendid work that has been done shows up plainly. We have too much smallpox in Texas today. In El Paso there has not been a case of smallpox this year. There is not a case of smallpox reported along this border until we get to Hidalgo and Cameron counties. The case of smallpox in Cameron County came from Mexico and there were twelve cases before it was discovered. The next crop was eight cases, and they stamped it out with the good work of Dr. Duggan and others who were on the ground there. There are 800 miles of river

border, which gives one an idea of the ground the United States government has been covering under Dr. Tappan's jurisdiction. There are cases of smallpox all the way up into New Mexico along the Santa Fe railroad. There is smallpox up to Potter County. The first case of smallpox in Galveston came from Houston. In border towns, those who are deported sneak in again. They might be deported across the bridge, but they go down the river six miles and wade across. The United States government is putting a patrol on there which will make it almost impossible for them to come back into this part of the country. Points 200 and 300 miles away from the border are still practically border towns, because those that do sneak in get around the physicians and around the immigration authorities. The only way we can work this out is to have a county health unit of full-time men back away from the border, as well as along the border. When we get that, we are going to get results.

DR. J. W. TAPPAN, El Paso, Texas: The purpose of this paper was to stress cooperation between the federal government, the state, and the county and local authorities. The diseases particularly mentioned were smallpox, yellow fever and typhus, since they menace the United States more than the others.

THE USE AND ABUSE OF HELIOTHERAPY IN TUBERCULOSIS*

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Direct sunlight—I speak, of course, from the point of view of medicine—is a powerful agency. That as a therapeutic instrument it is powerful for good is now widely known. That it is equally or in even a greater degree powerful for harm is not, there is reason to think, so generally understood. It is my chief purpose in this paper to insist on the grave dangers involved in heliotherapy, as it is applied to tuberculosis, especially to pulmonary tuberculosis, and to urge that it be prescribed and administered with the greatest caution.

For much of the current abuse of heliotherapy we have as physicians no direct responsibility. The idea that sunlight will cure tuberculosis is an idea admirably adapted to win popular acceptance, since it fits in so perfectly with well known facts, and is in itself so immensely attractive. Nearly everybody has heard of the idea, or known some one else who has heard of it, so that it is hardly in the least surprising that a man who finds himself infected with the disease should begin at once to bare himself to the sun. Many persons have done it, and are doing it today, without the advice of a physician, with no knowledge as to whether it is indicated in the particular case, or as to how, if it were indicated, it should be gone about. A man with a violent infection in both lungs will think nothing of exposing the entire surface of his body, the chest included, to a combination of bright sun and hot, humid air. The result is that an alarming number of patients, under the influence of misinformation or incomplete information, are in this way jeopardizing their lives or even putting themselves definitely beyond the hope of cure.

For this state of things, as I have already intimated, we have no direct responsibility, though it appears to me incumbent on us to use every means in our power to remove the current misconceptions that bring it about.

But the abuse of heliotherapy is not confined to the lay public. Even within the limits of our profession the subject is not so generally or so fully understood as it ought to be. This fact is not surprising; indeed, it may be readily explained. In the first place, comparatively few physicians have occasion to make use of heliotherapy in their practice, and those who do not, having no special incentive to acquaint themselves with the treatment, are likely to entertain wrong notions regarding it not greatly different from those entertained by persons outside the profession. In the second place, even among those who without being specialists are considerably interested in and considerably informed on the subject, there is frequently a confusion of a technical kind. They have all heard of the Swiss scientist Rollier in connection with heliotherapy; and they have all heard of his zoning scheme. This scheme —five minutes to the feet one or more times the first day; ten minutes to the feet and five minutes from the feet to the knees the second day; fifteen minutes to the feet, ten minutes from the feet to the knees, and five minutes from the knees to the hips the third day; and so on—this scheme, which Rollier put forth as the merest suggestion, has been very commonly misinterpreted as a definite code. He meant it to be kept lightly in mind as a working norm, almost never to be adhered to, except tentatively, almost always to be freely departed from and adapted to the individual case; it has been taken for something inflexible and established. The confusion has come from identifying the zoning scheme of Rollier, a simple, helpful, easily mastered device, but only a device, with his technic—a different and a complex thing. Rollier's technic in heliotherapy, taken as a whole, is all that his zoning scheme is not: it is, at any rate, the opposite of stereotyped and fixed. The point he emphasizes above all others is that in administering sun everything depends on the reaction of the patient, for he was vividly aware that in nothing do people more perplexingly differ. To him every new patient was, in effect, a new problem in therapeutics.

As a result of a perfectly natural indifference to the subject on the part of some, and of a confusion between a device and a technic on the part of others, physicians are all too frequently prescribing heliotherapy in a manner ill adapted to the case in hand, and thus in numerous instances they are producing—however little they may suspect it—the most injurious effects.

The matter is serious enough to warrant a concrete illustration:

About a year ago a woman, aged 29, came to me suffering from tuberculosis. Six months before, she had considered herself perfectly well. A slight dry cough set in, accompanied by mild headache. These symptoms continued. Two months later, although she was not much worse, she was obviously not better, and she consulted a physician. At this time she began taking her temperature and discovered a daily maximum of 99.4 or 99.6 F. The physician skilfully diagnosed her disease as incipient tuberculosis and he advised her to take sun. This she did, and persevered faithfully in the treatment. She grew steadily and rapidly worse. At the end of six weeks her temperature had reached a high level, and she was beginning to expectorate. Still she continued the prescribed treatment. When I first saw her, six months after she became ill, four months after she began to take sun, she showed a bilateral tuberculosis, with pronounced cavitation in both lungs. In six months her disease had reached a stage which, had it been entirely neglected, it would scarcely have reached in a year and a half or two years. At the moment I write this she is within a few weeks of the end.

The purpose of this example is to illustrate my point —not, of course, to prove it. My contention is really two fold: first, that heliotherapy, injudiciously used, does serious and sometimes fatal harm; second, that its

* Read before the Section on Pharmacology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

injudicious use, even within the profession, is widespread. To prove the first of these propositions—that abuse of sun does serious harm—no single case is sufficient, since in any single case alternative explanations suggest themselves to the mind. It might be pointed out, for example, that some infections, even when there is no question of heliotherapy, develop with amazing speed, and that consequently in any given instance, as in the case I have cited, it cannot be conclusively argued that the swift progress of the disease was due to the action of sunlight. Again, to prove the second of these propositions—that abuse of sun is widespread—a single case is equally inadequate. With regard to the great injury often done by heliotherapy, I can only ask you to believe that I am aware of the possible alternatives to the opinion I have formed, but that the number of varying instances in which I have seen quick advancement of the infection accompany ill advised use of sun, together with evidence of an independent nature, has made them untenable. With regard to the widespread abuse of the treatment, I may urge that the single example of its abuse which I have offered is chosen almost at random from among a large number of similar cases within my own practice, and that what I hear in conversation with physicians from various parts of the country amply supports my conclusion.

It remains to ask: What is, then, the right use of sun treatment in tuberculosis? To this question at present no answer can be given that is at once final and complete. The science or the art of heliotherapy is comparatively new, and for a long time to come we must expect that increased experience will be followed by increased knowledge. What is of practical value in what at present is certainly known can be briefly summed up. We know that in some types of tuberculosis the sun is useful, that in others it is useless or far worse than useless; and we can distinguish roughly these types. We know, further, that it is seldom or never useful in any type of tuberculosis unless it is administered with patience and skill, and in accordance with a correct technic; and we can lay down with confidence the fundamental principles of a correct technic.

I will first explain briefly in what types of tuberculosis heliotherapy is indicated and in what types it is not indicated.

The accompanying classification of tuberculosis is made with reference only to heliotherapy, and is intended to serve a merely practical purpose. The primary division is based on the common distinction between the extrapulmonary (or so-called surgical) and the exclusively pulmonary types. The two main divisions are again subdivided. The subdivision of the extrapulmonary type requires no comment. The subdivision of the exclusively pulmonary type into productive and exudative is less obvious and possibly less familiar. The distinction between productive and exudative infections is not a hard and fast distinction, nor in any particular case is it necessarily a constant one; that is to say, an infection which we now put in the one class we may at a later stage put in the other. Still, though no rigid wall separates the two forms, they are as a rule easily differentiated in practice.

The exudative is commonly marked in all respects by its violence. It begins explosively; it produces high temperature and rapid pulse, decided loss in weight, decided coughing and expectoration, and also, not infrequently, night sweats. On physical examination it is often found to show only a small area of involvement, in spite of the pronounced general symptoms, but at the same time activity within the restricted area that is destructive and intense. Examined by the roentgen ray, it reveals corresponding traits: mottling, either fine or coarse, without much peribronchial increase, and with a tendency, as the disease progresses, toward cavitation. If the exudative is marked by its violence, the productive is marked by its deliberateness, its insidiousness. It begins more or less imperceptibly; it develops few or mild toxic symptoms, little coughing and expectoration, and no night sweats. Physical examination reveals a large area of involvement but small activity, many moist rãles but little extension and breaking down. The roentgen ray defines peribronchial strands or trunk formations, but, as we might expect, these are commonly diffuse, and they are seldom accompanied by cavitation.

The diagram is doubtless otherwise self-explaining. In the first three of the five classes defined, heliotherapy is invariably indicated; in the fourth class it is sometimes indicated and sometimes not, and in the fifth class it is never indicated.[1] On the whole, one

Classification of Tuberculosis

Tuberculosis

- EXTRAPULMONARY (So-called surgical: infections of external lymph glands, bones, joints, peritoneum, etc.)
  - Without pulmonary lesion.... Class 1
  - With pulmonary lesion..... Class 2
- PULMONARY (Infections of lungs and tracheobronchial glands)
  - Productive
    - Childhood type (tracheobronchial glands). Class 3
    - Adult type (lungs)..... Class 4
  - Exudative ..... Class 5

Class 1 to use sun treatment in all cases.
Class 2 to use sun treatment in all cases, but be careful to avoid reactions, and be especially careful in exposing the chest.
Class 3 to use sun treatment in all cases.
Class 4 to use sun treatment only in those cases which in spite of the best hygienic-dietetic treatment remain in a stationary condition or lose ground.
Class 5 never to use sun treatment.

should not hesitate to say that it is less important to remember when it is indicated than to remember when it is not.

The accompanying memoranda on technic are intended to serve as a working manual for the patient, and for that reason they are sometimes developed with what may seem exaggerated minuteness. What the average patient needs for his guidance is something extremely definite and unmistakable. Hence the detailed and categorical nature of the directions given. It is entirely true that in some particulars a slightly different procedure from the one here suggested would lead to equally satisfactory results. Still, the remark applies only to certain of the more detailed portions of the memoranda. In their main lines they represent conclusions drawn from the experience of many physicians, over a long period of years, and cannot be departed from without serious risk. For example, nothing connected with the subject is better established than the desirability, whatever the character or site of the infection, of starting exposure with the feet and proceeding gradually upward. Again, nothing is more certain than the desirability of protecting the diseased

1. The experimentation and the series of inferences that originally led to the conclusions here presented are discussed in some detail in a former paper: Watson, S. H.: Heliotherapy in Tuberculosis: A Scheme for Proper Selection of Cases, with a Word About Technic, Southwestern Med. 9:4 (Jan.) 1925.

part until an advanced stage of exposure has been successfully reached. Such matters as these are absolutely fundamental, and must not be ignored.

The sun chart has been developed by my associates and myself. A device somewhat of this nature seems almost indispensable in administering sun treatment.

CONCLUSION

Direct sunlight is a powerful agency, but it is as powerful for harm as it is for good. There is increasing evidence that in the treatment of tuberculosis heliotherapy is often excessively and unwisely employed. Its proper use is confined to certain definite types of the disease, and even in these types it should be practiced only with extreme caution.

TECHNIC FOR HELIOTHERAPY IN TUBERCULOSIS

MEMORANDA FOR THE GUIDANCE OF PATIENTS

GENERAL INFORMATION

1. *Nature of Sunlight.*—Sunlight is a form of radiant energy similar to the roentgen ray and to radium. It is an extremely powerful agent, and has far-reaching effects. Its strength is suggested by the common phenomenon of sunburn, which is caused, not by heat, as is sometimes supposed, but by light.

2. *Necessity of Caution.*—On account of its powerful nature, the sun treatment should under no circumstances be taken without the advice and constant supervision of a physician thoroughly familiar with its use. If this precaution is not faithfully observed, exposure to sun is likely to result in an aggravation of the disease it is intended to benefit.

3. *Limitations.*—The patient should bear in mind that heliotherapy is not in itself a cure for any type of tuberculosis. In some types of the disease it is an important or even an indispensable aid; but it should never be relied on to the exclusion of such standard therapeutic measures as rest, pure air, and abundance of nourishing food.

RULES AND SUGGESTIONS

NOTE.—The patient should read and reread all of the following memoranda until he has made himself completely familiar with every detail. Successful heliotherapy requires, from patient as well as from physician, skill, care and perseverance.

1. *Atmospheric Conditions.*—Do not while taking sun treatment expose your body to a cold wind, or in any other way allow yourself to become chilled. You should always be comfortably warm. On the other hand, you should avoid intense heat. The combination to be sought for, ideally bracing in its effect, is that of cool, pure, dry air and warm, bright sun. The best place and the best time for the sun-bath are the place and the time that make this possible. A combination to be sedulously avoided is that of hot, humid air and brilliant sun; it is bad for any type of tuberculosis, and in the pulmonary type it is extremely dangerous.

2. *Equipment.*—Take the sunlight in its full strength; do not take it through a screen or glass. A convenient apparatus for the purpose is a roofless tent so constructed that the sides may be lowered to the ground, or, if a circulation of air is desired, raised a few inches above it. When the head is not kept in shade, protect it with a white linen hat. To protect the eyes, use dark—not tinted—glasses. To protect the site of the disease during the early stages of exposure (see section 3 below), use, in all cases, thick white cloth. In pulmonary cases, wear a sleeveless jacket of this material cut so as completely to cover the chest, front and back. In cases of peritoneal involvement, extend the jacket to include the abdomen.

3. *Typical Scheme of Exposure* (for necessary modifications in individual cases see the following section).—The typical scheme of exposure is based on a division of the body into five zones: (1) feet to ankles; (2) ankles to knees; (3) knees to hips; (4) hips to chest; (5) chest to neck. (The arms are exposed with the body as they lie along it.)

Exposure is graduated as follows: The first day, expose zone 1 five minutes. The second day, expose zone 1 ten minutes and zone 2 five minutes. The third day, expose zone 1 fifteen minutes, zone 2 ten minutes, and zone 3 five minutes. Progress each day by exposing a new zone for five minutes and by adding five minutes to each of the zones previously exposed. It should be understood that throughout this series the time is to be divided equally between front and back, so that a uniform exposure may be obtained over the whole surface of the body. When the feet come to be exposed for one hour (one-half hour on the back and one-half hour on the front), this exposure should be held, and so with each of the other zones in succession (the exposure of no one of them being allowed to exceed one hour), until the entire body has reached the same point—that is, until the entire body is receiving the sun for one hour each day, one-half hour on the back and one-half hour on the front. Add to this amount of exposure only on the advice of your physician.

It will be observed that the sun is always taken first on the feet, and that additional exposure always proceeds gradually upward from the feet to the chest. (This important rule applies, of course, only to the general process of becoming inured to the sun; it does not lay down an order of exposure when several zones are to be exposed in a single treatment. When in a single treatment, for example, zone 3 is to be exposed five minutes, zone 2 ten minutes, and zone 1 fifteen minutes, the natural method is to begin by exposing all three zones at once, and then at the end of five minutes to cover up zone 3, and at the end of ten minutes to cover up zone 2; when the entire surface of the body is to receive the sunlight for the same length of time, all of the zones will be exposed simultaneously for the whole period.)

In all cases, the site of the disease (and in cases of peritoneal involvement the chest as well as the abdomen) must be carefully covered up from the sun until incipient pigmentation, the absence of undesirable symptoms, and clear evidence of general improvement show that the treatment is having a good effect. The question as to when this point has been reached should be determined only by the physician in charge. When in pulmonary cases exposure of the chest is begun, it may the first day be exposed one minute; the second day—all going well—it may be exposed two minutes; the third day—all going well—it may be exposed three minutes; and so on, with a daily increase of one minute, until the maximum has been reached which the physician prescribes as suitable to the individual patient. When in cases of peritoneal involvement exposure of the abdomen and chest is begun, the abdomen may the first day be exposed one minute; the second day—all going well—it may be exposed two minutes; the third day—all going well—it may be exposed three minutes; and so on, with a daily increase of one minute, the chest remaining covered until the maximum for the abdomen, as prescribed by the physician, has been attained. Then, when the maximum for the abdomen has been attained—all still going well—the chest may be added by the same slow stages. When exposure of the site of the disease is begun in surgical cases other than those involving the peritoneum, the initial treatment may ordinarily be longer than the one minute suggested in the preceding cases, and the rate of progress toward a maximum more rapid. What is proper to each individual patient must be determined by the physician in charge.

4. *Modifications in Individual Cases.*—Variations in the preceding scheme must be freely made in accordance with individual reactions, for in nothing do patients differ more radically than in their toleration of sun. Two of the differences they exhibit can be generalized. One of these has to do with pigmentation. Those patients who undergo pigmentation sooner than the average—individuals vary greatly in this respect—may advance their treatment more rapidly than is provided for in the typical scheme. Those who undergo pigmentation less quickly than the average, who redden rather than brown, are in danger of burns and must advance their treatment more slowly than is provided for in the typical scheme. In general, it may be noted, the darker the complexion of the patient the more readily he tans, and the less readily he burns. Blonds tan less readily than brunets, and red-haired blonds less readily than other blonds. The second of the two differences mentioned has to do with physical

condition: the sicker the patient, the less sunlight will he take. But beyond these two classifiable differences are others which appear to be entirely personal to the individual patient and altogether unpredictable.

So complex is the whole matter that it is impossible to exaggerate the importance of proceeding cautiously during the early stages of treatment. Since no one can know in advance how much sunlight he will tolerate, each patient must regard himself as a new and individual case, and must consider his first exposures as purely experimental. He must be prepared to go fast or slow, to advance to a high maximum or be content with a low maximum, as his experience suggests. The typical scheme of exposure he should never think of as more than a general guide.

5. *Symptoms of Overexposure* (see sun chart).—As an aid in the regulation of treatments the patient should keep a two-hour pulse and temperature record; and in addition he should take his pulse and temperature immediately before exposure, again immediately after exposure, and still again one-half hour later. In pulmonary cases the sputum, and in open surgical cases the amount of the discharge, must be carefully kept track of.

Sun Chart for the Use of Patients

Name of the Patient	Month	Days of the Month 1 to 31
TEMPERATURE		
Before sun-bath		
Immediately after		
One-half hour after		
PULSE		
Before sun-bath		
Immediately after		
One-half hour after		
REDNESS (after four hours)		
TANNING		
SPUTUM (amount)		
DISCHARGE (amount)		
HEADACHE OR DIZZINESS		
LASSITUDE, FATIGUE OR EXHAUSTION		
RESTLESSNESS, NERVOUSNESS OR INSOMNIA		
NAUSEA		
APPETITE		
PAIN OR DISCOMFORT IN DISEASED PART		
GENERAL FEELING		
ANY SYMPTOM NOT MENTIONED ABOVE		
MAXIMUM SUN EXPOSURE (in minutes)		
WEIGHT (to be noted weekly)		

Symbols and Abbreviations

X Present	— Decrease
O Absent	G Good
+ Increase	NG Not good
S The same (that is, no change)	CP Consult physician

A slight rise in temperature and a slightly increased pulse and respiration are normal consequences of exposure, and provided they do not continue for more than two hours they may be ignored. In no case, however, must the temperature or pulse one-half hour after exposure be higher than it was immediately after exposure. Redness of the exposed skin is likewise a normal effect of the sun, but it should in all cases have subsided within four hours after the exposure has ended.

Symptoms of overexposure fall into three classes:

Local symptoms: redness of the exposed skin appearing or persisting more than four hours after treatment; sensation of heat in the exposed skin; blistering of the exposed skin. Since sunburn, when present, is not evident until several hours after exposure, but persists, the skin should be inspected daily before treatment.

Focal symptoms: that is, aggravation of the symptoms at the site of the disease, such as increased sputum, increased discharge (in open cases), increased pain or discomfort.

General or constitutional symptoms: decidedly increased pulse and temperature, or slightly increased pulse and temperature persisting for more than two hours after exposure; feelings of fatigue or exhaustion; dizziness; insomnia, nausea; loss of appetite. It should be especially noted that, correctly administered, and in the proper cases, heliotherapy never produces disagreeable sensations. It is not necessary that a patient taking sun treatment should feel better because of it, either during the exposure or immediately afterward (though, when the conditions are as they should be, that is the usual effect), but he must not feel worse; nor, unless it be a feeling of well being or exhilaration, must he have any symptom that he did not have when the exposure began. If he does have any new symptom whatever, other than the agreeable ones mentioned, he is probably overexposing and should beware.

6. *After Overexposure.*—Immediately on the appearance of symptoms of overexposure, the treatments should be entirely discontinued for several days. If the patient was just beginning to take treatments at the time of overexposure, he should, on resuming them, start off with a smaller initial amount and increase this amount more cautiously than before. If he had made some progress with the treatments at the time of overexposure, he should, on resuming them, start off with an amount less than that to which he had arrived, and then, of course, as in the preceding case, increase this amount with the greatest caution. This resuming of treatments at a point behind the previous maximum is especially important in cases in which no pigmentation has occurred.

7. *Warning.*—The preceding rules and suggestions will serve as memoranda for the patient and as a convenience for the physician in charge. On the basis of these, the physician will give the directions appropriate to the individual case.

They are emphatically not intended to be used independently of competent supervision.

The patient should not begin treatments—as has already been said—without the physician's advice, and in progressing with the treatments he should not advance in the slightest degree beyond what the physician has definitely prescribed. When he is in the least doubt as to what he should do, he should consult the physician before taking action. A single misstep may cause serious or even irremediable injury.

110 South Scott Street.

ABSTRACT OF DISCUSSION

DR. CHARLES E. SEVIER, Colorado Springs, Colo.: There are two things that underlie the productive sun bath as laid down by Dr. Rollier: strict individualization and heliotherapy. There are certain cases which he described in which that should never be used. Some of these are arteriosclerosis, hypertension, decompensated heart lesions and high fever with toxemia; in cases of this sort, insolation should never be used. Patients with compensated heart lesion can be insolated in tachycardia, provided special care is taken to cover the pericardium with white gauze and to go very slowly with the insolation. I feel that heliotherapists get into trouble by overlooking the principles that are laid down, such as preliminary fresh air baths. Dr. Rollier emphasizes this point. When a patient enters his institution (and we follow this treatment in our work in Colorado Springs), he is put to bed at complete rest for about ten days. This is called a period of adaptation. During that time he is taught to live an open-air life and to remain in the open air day and night. The body is first exposed to the air for a certain period each day, but not to the sun. After about ten days the patient has gone through this treatment and is in a better condition to undertake the sun treatment. This is essential and should always be given. The section of the country in which we practice is also a thing that should guide us in our work. At an altitude, for instance, of 6,000 feet, 75 per cent of the total energy of the sun is realized, while at sea level it is only 50 per cent. At an altitude of 6,000 feet he has to take much smaller doses, and the total amount of sun would be smaller than at sea level. The time of day and season of year are important factors. In summer the bath should be relatively shorter than in winter, because the added heat of the atmosphere to the heat of the sun causes the heat of the sun to be more severe on the patient. These points are extremely important and the success of the treatment depends on observing them. Insolating patients with pulmonary tuberculosis is a question frequently discussed in heliotherapy and one of the hardest to get clear. Our practice in Colorado Springs is about this: We do not insolate patients with solely pul-

monary tuberculosis until they are rid of fever and until they have two hours of exercise a day; in other words, patients with chronic tuberculosis. We do not employ insolation in active cases of pulmonary tuberculosis. We found that the temperature goes up and it is an extremely dangerous thing to undertake. Dr. E. H. Bruns at Fitzsimons Hospital in Denver follows this rule also, having found out by experience. When patients with pulmonary tuberculosis are insolated, the insolation should be slowly begun with the feet and limbs at intervals of one and two minutes instead of five, as is the general rule laid down by Dr. Rollier. This is a variable thing, and no two cases can be considered alike. Generally speaking, one must start with very small doses in the case of pulmonary tuberculosis. Heliotherapists, in their enthusiasm, talk too much about the sun. A man who is undertaking the care of extrapulmonary tuberculosis should be well trained in orthopedic surgery as well. In treating a case of tuberculosis of the foot, one can accomplish very little if one does not have the right position. It is a thing that should be treated by heliotherapists well trained in orthopedic surgery. Heliotherapy is not a get-well-quick cure and it is not a cure for all ills, but is a conservative form of treatment, as Dr. Rollier says, which some time later helps to defend a body against disease.

DR. I. D. BRONFIN, Sanatorium, Colo.: I am fully in accord with Dr. Watson that a great deal of harm has resulted from the indiscriminate use of heliotherapy. I know a number of patients who had been advised to take this treatment without having been given specific instructions on the importance of careful and gradual insolation. The scientific evaluation of this therapeutic agent constitutes a great problem. In a recent study of fifty cases of pulmonary tuberculosis of the advanced type in which sun treatment had been given for an average period of nine months, I was unable to conclude whether the apparently favorable or unfavorable results had been due directly or indirectly to heliotherapy. I did ascertain, however, with reasonable certainty, that a history of hemoptysis does not constitute a contraindication to its use. Extrapulmonary tuberculous lesions were invariably favorably influenced by this treatment. A few patients in our series had pleural effusions complicating artificial pneumothorax. The fluid became comparatively rapidly absorbed under sun treatment. There is one thing certain: solar rays are very potent agents, even when the treatment is carefully supervised. The reactions that I noted were not unlike those obtained from tuberculin. Constitutional symptoms, such as rise in temperature, tachycardia and headache, and a focal reaction as manifested by localized pulmonary congestion, were not infrequent phenomena. It is plausible to assume that there may be an absorption of some protein substances from the skin, which possibly are in some measure responsible for the marked reactions at times noted in these cases. Individualization of our patients is of the greatest importance. Constant and careful watchfulness must be exercised. When this treatment is administered for extrapulmonary lesions only, such extreme caution is probably not necessary, but in pulmonary cases constant vigilance is essential. We give the preliminary air bath for one or two weeks. The chest is not exposed until the rest of the body has become well tanned or at least moderately brownish. The whole chest is not exposed at one time; only one or two ribs are permitted to be insolated, and not until the lower portion of the chest has assumed a brownish or actually tan color, do we permit insolation for the upper chest. It should be mentioned that heliotherapy applied locally by means of specially devised mirrors is very valuable in laryngeal tuberculosis of the subacute or chronic type.

DR. FELIX BAUM, Denver: There is a resemblance not only between the action of the sun's rays and the tuberculin, but also between the action of the sun and the roentgen rays in tuberculosis. Both rays have a stimulating effect in those cases in which there is a spontaneous tendency to form scar tissue. In the National Jewish Hospital at Denver, we like to combine the sun and the roentgen-ray treatment, especially in fibroid cases. Here we observed a gradual spontaneous shrinkage of cavities even without a collapse treatment. I have many films proving this statement. We do not administer the direct sun and roentgen-ray treatment of the lungs in all exudative and inflammatory lung cases and in patients with a history of a severe hemorrhage. In some of these cases we administer, in smallest doses, the very careful indirect treatment, especially that of the spleen and the blood-forming organs.

DR. ORVILLE EGBERT, El Paso, Texas: I wish to emphasize what Dr. Watson has brought out: that sun energy is a most potent energy and that it is being used injudicially by many. Those of us who live in sections of the country where we have an intense sunlight and a constant sunlight have been interested in the comparative studies of sun therapy and the artificial light therapy. My own observations correspond to those of Freiberg of Cincinnati, that we do not get a true pigment from the use of quartz light, certainly not a pigmentation that in any way corresponds with that incident to direct rays of intensive sunlight. The reaction of the skin and the entire organism to the sun is, in my observation, entirely a different process than the reaction to artificial light. I have made an observation that I think is of some value. We carry the daily sun bath to a period not in excess of fifteen minutes. We hold the patient at that for a sufficient time to get a skin reaction which is rather hard to describe but which I feel prepares the patient for the more intensive doses and the advantageous physiologic reaction. The skin seems to get soft and deep (I use "deep" instead of "thick" because my idea of a thick skin is something a little different), the epidermal layer loses its superfluous dead cells, and there is a stimulation of the sebaceous glands of the skin which produces a soft, oily, velvety texture. If that reaction is obtained before carrying the dosage to a point that would produce pigmentation, I feel that pigmentation can be obtained at an earlier date and the organism will have reacted more favorably.

DR. VICTOR RANDOLPH, Phoenix, Ariz.: Dr. Watson has given clearly the experience of many of us in the Southwest. Patients begin to come into the Southwest in October and November, and many of them come with the idea that they should be outdoors in the sun. That idea is sometimes obtained from reading popular literature, sometimes from the family physician. In the latter case it is usually not accompanied by any advice as to how the treatment should be directed. Many of these patients do not come to a physician when they are sent to the Southwest, but they are seen four or five months afterward. Many of them at that time have had unwise amounts of sun exposure. Dr. Watson has given one typical case in which the patient came to him after a period when she had been taking exposure under direction. We have seen reaction of a similar sort from a very small amount of exposure in patients who have been under control in our sanatoriums. I recall a patient recently who started taking sun baths shortly after he came to us, but without our knowledge; the day following his first exposure we noted a very severe reaction which lasted for a few weeks. Dosage undoubtedly is of prime importance, and this the general public and many physicians do not realize. Sunlight should be considered a therapeutic agent; it should be considered from the standpoint of dosage just as much as one should consider dosage when giving digitalis or acetylsalicylic acid or any drug of any sort. The important thing in dosage, since we do not know at present any means of estimating exactly the amount of radiation that a patient can receive, undoubtedly is to give too little rather than too much, and as Dr. Sevier has emphasized, instead of accepting any schedule such as Rollier's, one must be guided by the individual case and use initial exposures sometimes of one or two minutes perhaps rather than five minutes. Dr. Watson has not particularized that point, but I am sure he uses in some cases very much smaller amounts than given in his paper.

DR. C. D. SPIVAK, Denver: Since all those who use heliotherapy put the patient in an air bath for about ten days preparatory to giving direct sunlight, I would ask those who have had experience in heliotherapy whether they have noticed that air baths have injured the patient. If it is found that air

baths do not injure the patient, then it seems to me that such patients who cannot take sun treatment, direct radiation from the sun, would be improved if given air baths continuously.

DR. SAMUEL H. WATSON, Tucson, Ariz.: In answer to the question about air baths, I will say that it has never been proved that the real effects that we get from the direct rays of the sun are actually due to the direct rays of the sun. It may be that the air bath is more important than the direct rays of the sun, and for some time I have been advising all of my patients to take air baths. They get enough reflective rays of the sun, so that they get a great deal of benefit and this method never does harm.

ASPERGILLOSIS OF THE LUNGS AND ITS ASSOCIATION WITH TUBERCULOSIS *

MARY E. LAPHAM, M.D.
HIGHLANDS, N. C.

Aspergillosis of the lungs is a disease caused by an exceedingly common mold, *Aspergillus fumigatus*. It is a disease which clinically and pathologically so closely resembles tuberculosis that it usually escapes recognition and is diagnosed as tuberculosis. This mistake may even be made at necropsies; for the ulcerations of the bronchi, the pneumonic and emphysematous areas, the cavities and pleurisies are much the same in one disease as in the other.

There is a common belief that this mold is purely saprophytic; that it can live only on preexisting lesions in the lungs; that it cannot attack living tissues because it has no primary pathogenic powers. To show its pathogenic properties, nine rabbits were inoculated intravenously with varying doses of spores, from a pure culture of *Aspergillus fumigatus* furnished by Dr. Thom of Washington.

In March, 1926, the pathologist of the Flagler Hospital, St. Augustine, Fla., inoculated three rabbits. One rabbit died in twenty, one in twenty-four and one in forty hours. The lungs were solid as in lobar pneumonia; the spleen, liver and kidneys were greatly congested; the mycelium was found growing in the lungs, liver, spleen and kidneys, and a pure culture of the mold was obtained from them.

March 24, three rabbits were inoculated at the Johns Hopkins pathologic laboratory. One rabbit died in five days. Gross lesions in the lungs were not conspicuous, but the liver and kidneys looked like miliary tuberculosis. Two weeks later the second rabbit was killed. The lungs, liver, spleen and kidneys presented the typical appearance of miliary tuberculosis. The third rabbit remained apparently well. April 1, three rabbits were inoculated at the Hygienic Laboratory, Washington. April 12 they were killed. The livers, kidneys and spleens of all the rabbits presented the typical appearance of miliary tuberculosis; the lungs of the second and third rabbits were solid, as in lobar pneumonia; those of the first rabbit were studded with tubercles as large as a grain of rice, and were typically tuberculous in appearance. In all the livers, spleens, lungs and kidneys, tubercles were abundant under the microscope.

In human beings there are two general types of aspergillosis of the lungs, just as there are in tuberculosis, the wet and the dry; of the wet, or parenchymatous, type, there are varieties corresponding to the location of the attack and the tissues chiefly involved. When the mucous membranes of the bronchi are attacked, they may become almost black from congestion; ulcerations may be eaten out, and patches of membranes formed. Pathologically and clinically, this is the bronchitic type of pulmonary aspergillosis. An emphysematous type was shown in the case of a farmer, aged 21, who began suffering from crises of dyspnea while apparently perfectly well.[1] Four months later he died in a crisis of suffocation. The lungs were highly emphysematous and completely covered the heart. The spores of the mold had been carried down into the sacs of the alveoli, where they had begun their development and then spread on up into the smaller bronchi, eating them out as they went, until the lungs were riddled with microscopic cavities.

A child, aged 2½ years, died of pneumonia twenty-seven days after the illness began.[2] The lungs were like sieves, they were so filled with tiny cavities connected with the bronchi, while posteriorly there was a large cavity directly connected with a large bronchus.

In another case of supposed pneumonia, five centers of growth of *Aspergillus fumigatus* had spread out into circular patches from 2 to 5 cm. in diameter, and these were surrounded by areas of hepatization and compensatory emphysema which gave the appearance of chronic pneumonia.[3]

A woman, aged 71, died in a crisis of suffocation.[4] The pulmonary artery was distended to 5 cm. and stuffed with a growth of *Aspergillus*, and with clots and thrombi. The growth had crept up to the root of the left lung and followed the descending vessels down to their termination, plugging and obstructing them and causing necrosis of their terminal areas. The mycelial filaments had everywhere plunged through the walls of the blood vessels into the surrounding tissues, causing necrosis and cavity formations. Areas of surrounding hepatization and emphysema confirmed the diagnosis of chronic pneumonia, which was accepted until the growth of *Aspergillus fumigatus* was found in the blood vessels.

In another case,[5] a soft, spongy, purulent mass as large as an apple was found in the upper anterior part of the lung. The vessels leading to this area were obstructed by a growth of *Aspergillus fumigatus*, which had formed plugs, clots and thrombi.

In none of these cases of supposed pneumonias had the diagnosis of aspergillosis of the chronic pneumonic type been made during life.

In the pleuritic type, the spores are carried to the periphery of the lung, become deposited there, and attack the pleural surfaces, causing congestion, thickening, toughening and sometimes bands of adhesions, conditions very familiar to those attempting the production of an artificial pneumothorax.

In this pleuritic type of aspergillosis, pain is the first, and often the only symptom. In 1923, a woman, aged 40, had a severe attack of pleurisy of the right base, with such severe pain that hepatic colic was diagnosed.[6]

* Read before the Section on Pathology and Physiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Arkle and Hinds: Pneumomycosis, Tr. Path. Soc. London, May 9, 1896.
2. Wheaton: Tuberculosis with Aspergillus Niger, Tr. Path. Soc. London, May 20, 1890.
3. Weichselbaum: Eine Beobachtung von Pneumomycosis aspergillina, Wien. med. Wchnschr., 1878, No. 49, p. 1289.
4. Macaigne and Nigaud: Aspergillose primitive du poumon avec artérite pulmonaire oblitérante, Bull. et mém. Soc. méd. d. hôp. de Paris, Feb. 11, 1926, p. 183.
5. Kohn: Ein Fall von Pneumomycosis aspergillina, Deutsch. med. Wchnschr., 1893, no. 50, p. 1332.
6. Miéres, J. F.: Caso de seudo-tuberculosis pulmonar causada por el Aspergillus fumigatus, Semana méd. 1:370 (Feb. 12) 1925.

After a year of suffering, an operation for gallstones was followed by a very painful attack of pleurisy. Two months later she had an attack of acute bronchitis with high fever and bloody sputum. In 1924, she had a violent hemorrhage. The sputum had always been negative to tubercle bacilli, but the diagnosis of tuberculosis was made because the clinical, physical and roentgenographic observations supported it. She improved in the mountains until another violent hemorrhage came on; then guinea-pigs were inoculated and proved to be negative to tuberculosis, while the sputum was positive to *Aspergillus,* so she was put on iodides and made a good recovery.

Another case of acute pleurisy followed by acute bronchitis in a woman, aged 40, was reported by Castrillón.[7] It began with a violent attack of pleurisy, with chills and fever. Fifteen days later she began to cough continuously and to suffer from crises of dyspnea. The bronchitis extended from the largest to the smallest bronchi, and the noisy, wet râles drowned out all other sounds. The sputum was negative to tubercle bacilli but positive to *Aspergillus,* so she was put on iodides and made a rapid recovery.

The asthmatic type is rather characteristic of aspergillosis of the lungs. In one of my cases a celebrated specialist could obtain only a test reaction with dust. Was this because the dust contained spores of *Aspergillus?* The sputum was positive to *Aspergillus.*

The insidiousness and the latency of the interstitial type of aspergillosis of the lungs makes the course of the disease very like the same type of tuberculosis. It occurs when the spores pass through the walls of the alveoli and begin their growth within the interstitial tissues, very much in the same way as do the bacilli of Koch. Hildebrandt[8] describes the defensive gathering of the tissue cells, the lymphocytes, leukocytes and macrophages, to build an imprisoning wall around the invaders and shut them in by tubercle formation. Just as it may happen in tuberculosis, these tubercles may remain discrete or become conglomerated; may vary in size from invisibility to nodules as large as a nut, and may become sclerosed by connective tissue infiltrations. The future course of these invasions, their clinical, physical and roentgenographic manifestations, are so similar to those of tuberculosis that it may not be possible to make a differential diagnosis without inoculations and cultures. Tuberculin is of no diagnostic value whatever because aspergillosis gives precisely the same reaction as tuberculosis.

There are cases of aspergillosis on record which subsequently became tuberculous, and Rénon says that this is a dangerous feature of the disease. While it is not generally believed that the development of tuberculosis is in any way associated with a disease so rare that it is a curiosity, how do we know that this disease is so infrequent? Because we do not recognize it is no reasonable proof that it does not exist. Suppose we should make cultures from the sputum of every case of tuberculosis, how many cultures would be positive to *Aspergillus?* I am confident that the percentage would be higher than we could believe. During the last three years I have had ten cases of positive cultures which were sent to me as cases of tuberculosis. If ten cases of aspergillosis are found in three years in an obscure village on top of the Blue Ridge Mountains, how many cases would be found if routine cultures were made from the sputum of every case of tuberculosis? Such a search would inform us as to the frequency of the disease, its possible danger as a cause predisposing to the development of tuberculosis, and its influence on recovery. Here is a disease that is capable of causing pleurisy, acute and chronic; bronchitis, acute and chronic; pneumonias, acute and chronic; emphysema; bronchiectasis; atelectasis; sclerotic fibrosis; tubercles; cavities; endarteritis; thrombosis; infarcts; hemorrhages; asthma. Would it be strange if such a disease should seriously complicate or even inhibit recovery in a case of tuberculosis?

7. Castrillón, B. A., and Borsani, E. P.: Micosis aspergilar, Semana méd. 1: 924 (April 23) 1925.

8. Hildebrandt: Experimentelle Untersuchungen über des Eindringen pathogener Microorganismen von den Luftwegen und der Lungen, Dissertation, Konigsberg, 1888.

SUMMARY

We are thoroughly ignorant of the frequency of aspergillosis both as a primary and as a secondary disease.

We have no idea how much aspergillosis of the lungs predisposes to tuberculosis in human beings or in cows.

We do not know how much it impedes or even inhibits recovery in cases of tuberculosis.

We have no idea whatever as to its association with acute respiratory diseases.

We know that it affects cows much as it does human beings.

We know that it gives the same reaction to tuberculin that tuberculosis does.

Should we apply this knowledge to the study of the tuberculosis of dairy herds?

In order to gain adequate information as to the frequency and importance of this disease, should not a systematic research study be made:

1. By determining the percentage of aspergillosis cases among the tuberculosis cases in the large tuberculosis sanatoriums.

2. By determining the percentage of cases of aspergillosis in the lungs at necropsies.

3. By determining the percentage of cases of aspergillosis in cases of respiratory diseases.

4. By applying these principles to dairy herds.

ABSTRACT OF DISCUSSION

DR. HENRY C. SWEANY, Chicago: I am greatly interested in this report on aspergillosis. It seems to me that the similarity of this type of disease to tuberculosis is not unusual. Nature has very few methods of reacting to different types of foreign protein and different types of foreign bodies. When there is a foreign body of the nature of tubercle bacilli or aspergillosis fungus, the same type of cell comes out and causes the reaction that is so characteristic, and perhaps this is the reason it is so difficult to differentiate between aspergillosis and tuberculosis. In our sanatorium in Chicago we have performed about 175 necropsies in chronic tuberculosis cases. Grossly and miroscopically we have not been able to find anything resembling aspergillosis. The question comes to my mind whether the climatic conditions or locality do not have a great deal to do with it. We know of the work of Castellani, who states that this type of fungus growth is far more prevalent in certain regions than it is in others. As to the predisposition to tuberculosis, there is no doubt that any condition of this nature would predispose to tuberculosis. Anything that will lower the vitality of the human body and bring it down below par is bound to allow the tubercle bacilli to become active. Perhaps in our sanatorium we have overlooked them. Perhaps there are many cases in which the two coexist. Were these parasites producing pathologic changes in rabbits from pathogenic or wild aspergillosis fungi found on bread and so forth?

DR. KENNETH M. LYNCH, Dallas, Texas: As Dr. Lapham indicated, *Aspergillus fumigatus* is a ubiquitous organism,

and this fact must be considered fully in interpreting a report of this kind. I want to encourage Dr. Lapham to further effort toward finding the tubercle bacillus. I can readily see how the sputum of many persons may contain *Aspergillus fumigatus*, possibly without relation to disease, possibly as secondary or accidental factors. I may be old fashioned in my ideas about aspergillus infections, and my respect for this organism has been increased by some recent experiences with it in scalp lesions. Even here, however, it probably was inoculated by scratching. I have had no personal experience with aspergillosis of the lung, but I should expect *Aspergillus fumigatus* to be commonly found in open tuberculosis of the lung, and I think we must be positive about the absence of tuberculosis before saying that such conditions are aspergillosis.

DR. ALDO CASTELLANI, New Orleans: For some years I have been working at various bronchomycoses. There are two types of aspergillus mycosis, the same as any other mycosis. There is the primary type and the secondary type. The aspergilli found in cases of tuberculosis are, as a rule, secondary invaders; but, as Dr. Lapham has pointed out, there is no doubt whatever that there is a primary aspergillus bronchomycosis. Several cases have been put on record by Veedal and Brownee, myself and others. The first paper I think called attention to the fact that this condition may be common in certain districts and certain countries. I quite agree with him. The condition is common in certain parts of France and certain parts of Italy. It is common among a certain class of workers, the so-called pigeon breeders. I do not see how the pigeon breeder fattens his or her pigeons. The pigeon breeder will fill his mouth with various grains. Then he insufflates the grains into the throat of the pigeon. The grains contain a large number of spores of fungi, principally aspergilli, but the aspergillus spores are the commonest of all. These spores for a time invade the pharynx, larynx, bronchi and lungs. The bronchopulmonary type of disease varies. I have seen several of these cases, and clinically they certainly resemble tuberculosis. In bad cases the patient brings up mucopurulent sputum with occasionally some blood. At times a true mycosis takes place. In both cases percussion will reveal all the symptoms of ulcerative tuberculosis, and even roentgen-ray examination will not help much to differentiate. These cases have a very bad prognosis. The moment the diagnosis of broncho-aspergillus mycosis is made, the only thing to do is make the patient, if he is a pigeon breeder, give up his work and make him have a change, a change of climate or a change of air. In cases of medium gravity, occasionally potassium iodide gives very good results, but in bad cases it is no good.

DR. MARY E. LAPHAM, Highlands, N. C.: The diagnosis of secondary aspergillosis is suggested by the appearance of membranes, but primary aspergillosis is apt to be overlooked because membranes are not always formed and mycelium may not be found in the tissues, and the spores remain unsuspected. The tubercles are so similar both macroscopically and microscopically to those of Koch's bacillus that the diagnosis of tuberculosis is made. The cultures were furnished by Dr. Thom of the Department of Agriculture, Washington, D. C. A positive culture from the sputum does not prove that there is aspergillosis of the lungs, because these spores are probably more or less constantly present in the air and therefore in the lungs. Agglutination tests may be more convincing. As Dr. Lynch says, the aspergillus lesions of the scalp might be due to scratching, because aspergillus spores are often found beneath the nails and often cause inflammatory conditions. Since aspergillus spores are often present in the air, a loss of immunity might at any moment lead to an attack of aspergillosis. Studies of this disease might prove that it is far more common than we suppose and that it is to be feared as a common predisposing cause of tuberculosis. It would be highly desirable to know how many cases of tuberculosis develop on aspergillosis. When a case of tuberculosis is complicated by aspergillosis, recovery seems to be rendered more difficult and more unstable because there is a decided tendency to relapses. If I had a simple infection of my lungs by tubercle bacilli I should not be as anxious about my recovery as I would if it were complicated by aspergillus processes. Good recoveries are made in primary cases of aspergillus, but the tuberculous cases complicated by aspergillosis have not done well. Dr. Castellani mentioned the use of iodine. Unfortunately, the sympathetic nervous system is often too irritable to permit its use. In these cases, sodium cacodylate may give good results.

ROENTGENOTHERAPY OF EXUDATIVE IRITIS *

E. C. SAMUEL, M.D.; H. N. BLUM, M.D.
AND
E. R. BOWIE, M.D.
NEW ORLEANS

Our experience in the roentgen-ray therapy of iritis of the exudative type dates back about seven years. The first observation made was in a case of iritis supposedly of traumatic origin, and roentgen-ray exposure was made to determine the presence of a foreign body. There was a large fibrinous exudate in the anterior chamber, and it was noted that rapid disappearance of this spongy material followed roentgen-ray exposure. This happened without the administration of internal treatment, there being used here only mydriatics to keep the ciliary body at rest and to dilate the pupil fully. However, in the light of continued experience, similar clinical pictures, by the use of similar light, stimulating doses of roentgen rays, administered at the direction of one of us (H. N. B.), not by one laboratory but by several different laboratories, all resulting in the same marked amelioration of symptoms with prompt, eventually complete resolution of the lesion, it is felt that there is here a definite contribution to be made to both ophthalmology and roentgenology.

The cases of iritis that have been treated were of the exudative type, variously classified in the different textbooks as spongy iritis and croupous iritis. The causation in the majority of cases has been syphilitic.

The patients have shown the usual signs of severe iritis, with deep or pericorneal injection and narrowed, fixed pupils. The markings of the iris have been indistinct, and the characteristic feature has been the formation of an exudate in the anterior chamber. When the pupil has been dilated with a mydriatic, this exudate has been seen on the anterior capsule of the lens, in the pupillary space. The severity of these cases does not seem to be as marked as in those of the plastic type, as the pupil is more ready to respond to mydriatics and there is less tendency to the formation of posterior synechiae.

The latest patient who has been treated had a late postoperative infection, following cataract extraction. There was a hypopyon of several millimeters, with a yellowish exudate in the pupillary space and a threatened infection of the vitreous, especially at the height of the disease. The iridocyclitis was so severe and the consequent deposit on the posterior wall of the cornea so heavy that the iris was seen only with difficulty.

The usual therapeutic agents were employed in this case: continuous hot applications, mercury inunctions, leeches to the temple, milk injections, intravenous administration of a 1 per cent solution of mercurochrome-220 soluble, all without avail, and finally the

* Read before the Section on Radiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

roentgen ray was resorted to with the usual favorable result.

Our roentgenotherapy in these cases is most simple, and our technic, as mentioned above, is the result of the purely accidental observation by one of us (H. N. B.) of the marked improvement in an iritis of this type following a roentgen-ray exposure for suspected foreign body in the eye. This occurred in a case that had been treated for some days, and finally it was desired to eliminate the possibility of a foreign body. The usual preliminary observation was made, one postero-anterior and one lateral view, to determine the presence or absence of a foreign body before further localization. None was found, but the following day the patient was strangely improved. Still nothing was thought of this, even when the patient passed on to a rapid and further uneventful recovery, until some months later another stubborn case presented itself and, as a last resort, similar roentgen-ray exposures were given with equally favorable results, although no foreign body was present or suspected. It was roentgenotherapy, purely and simply.

Since this time, treatment has been done in selected cases of iritis, corresponding as closely as possible to the symptoms as outlined, to the number of eleven, all with favorable and astonishing results. Our technic is very simple, an exposure over the affected eye or eyes of thirty seconds, with a 5 inch gap, 5 milliamperes, 20 inches distance and filtration, 1 mm. of aluminum. There is probably no virtue in the prolongation of the time of exposure by the reduction in the millamperage, except that it seems to make more of an impression on the patient as to the fact that he is being given some real treatment. As will be understood from our first remarks, our first patients were treated with the higher milliamperage, ordinary roentgenographic technic. The point is, merely, the administration of a light, stimulating dosage.

The amount of irradiation may seem to some ridiculously small, as it cannot be considered under any circumstances to total more than one twentieth of an erythema dose through a millimeter of aluminum. Many of us, however, have had some degree of success with other mineral therapeutic roentgen-ray exposures, notably in our experience the so-called stimulating dose advised by Sampson in connection with diathermy. In all the cases in which this has been used the patients have responded in a distinctly more favorable manner and much more promptly than in similar cases with the same diathermic applications but without the accompanying irradiation. Again, in thymus irradiation, we note really very little improvement in our results, at present using an exposure time of one and one-half minutes over an earlier technic with from thirty to forty-five seconds exposure.

CONCLUSIONS

In the eye we have an exceptionally favorable site for minimal dosage, for we have here an unobstructed field, of the least possible density with no osseous, muscular or cutaneous tissue to penetrate before the affected area is reached. It may seem absurd that there is any value to be attached to these exposures, but our only reply is that we have practiced what we preach and we believe that others can do the same, just as other roentgenologists have at the direction or rather at the plea of Dr. Blum. We at first thought the notion absurd and his pleas were necessary with us, but we have been converted and we feel that such irradiation should be offered all patients suffering from an iritis of the exudative type, no matter what may be its origin and no matter how stubborn it may have been or what the previous treatment. The case of late infection was the only one in our list that was not of the croupous or spongy type of iritis. Might not the same favorable result follow similar treatment in other types of iritis? This is to be considered. Iritis is not as frequently seen as formerly, and for this reason our observations do not cover all types of the disease.

ABSTRACT OF DISCUSSION

DR. B. H. JACKSON, Scranton, Pa.: There is a general opinion among ophthalmologists that irradiation of the eye by roentgen ray is very dangerous. Last year I reported a case of bilateral iridocyclitis which was treated by roentgen ray. The patient was supposed to have Mikulicz' disease with very large bilateral enlargement of the parotid and lacrimal glands. She had a cataract in her left eye, photophobia and lacrimation, a posterior synechia, and cloudiness of the vitreous. An ophthalmologist had been treating her for a long time, but she was getting worse and finally became practically blind in her left eye. He then sent her to me for treatment of the enlarged glands. He cautioned me not to treat her eyes. In a few treatments the glands cleared up. I asked the ophthalmologist if he would allow me to treat her eyes. He said, "She is practically blind in her left eye, and I will let you treat her left eye." We gave her one treatment, which was only one fifth of a dose, and within ten or fifteen days this eye cleared up entirely. Of course, she had the synechia and the cataract, but she had no photophobia, no more lacrimation and no more suffering. Then her physician let me treat the other eye and it immediately cleared up and she became perfectly well, except for the scars which were left of the original disease, which, by the way, would not have been there had we been allowed to treat her when she first presented herself to the ophthalmologist. Of course, this case is a little bit different. Nevertheless, it was an exudative iritis. It was not due to syphilis. There was no history of it and the Wassermann reaction was negative. I am inclined to believe that we were dealing with a tuberculous condition.

DR. M. W. KAPP, San Jose, Calif.: I have found that the mild dose of roentgen ray does the most wonderful work for me of any modality I have ever used. Following inflammations are exudates. Mild roentgen-ray treatment will start the resolving of these exudates. It softens the intercellular matter, and the exudates begin to disappear. I never use anything but the ionization dose, and I get most wonderful results without any danger. I use it wherever there is an exudate. I aid the work with other modalities, of course.

DR. E. C. SAMUEL, New Orleans: My technic is: thirty seconds; 5 inch gap; 5 ma.; 20 inch distance; filtration, 1 mm. of aluminum. In speaking of this form of treatment to one or two of the other ophthalmologists at home, I was asked: Why do you want to give them roentgen-ray treatment if they usually clear up in about thirty days of their own accord? But why wait all that time when one can clear it up in three or four days? That is the only answer. There is no danger.

Most Powerful Primitive Instinct.—I find the instinct of self-preservation to be of greater moment and of greater intensity than that of reproduction. Without it the great part of animal life would become extinct. The "sine qua non" of the instinct of self-preservation is the instinct of fear. If there were no fear—if man had no fear of the tiger, the rabbit no fear of the dog, the sparrow no fear of the cat, the animal world in time would consist solely of the carnivora, and the carnivora would walk into the sea and get drowned. Fear is a biologic necessity.—Davis, A. E.: *Lancet* **2**:118 (July 17) 1926.

PARANASAL CELL INFECTION AS A CAUSE OF INFECTIOUS ARTHRITIS*

MILLARD F. ARBUCKLE, M.D.
ST. LOUIS

In a paper read before this section at San Francisco in June, 1915, Hammond [1] stated that "perhaps the chief problem to be considered in chronic infectious arthritis is the determination of the etiologic factor within the body." Furthermore, he thought it reasonable to suppose that if the arthritis is due to some suppurative process, the joint condition should be relieved, provided the etiologic factor is found and removed. After having called attention to the numerous possible sources of infection within the body, and the difficulties encountered in an effort to determine which one is responsible for the joint manifestations, he stated that he did not share the opinion of those workers in this field who believed that a recognizable focal infection was present in nearly all cases of chronic infectious arthritis, nor was he convinced that the removal of the focus of infection would necessarily cure a chronic arthritis of some months' standing.

No one, of course, would expect restoration of joint surfaces that have been destroyed, but in our experience, we have found it possible in a number of instances, through treatment of the focus of entry, to cause arrest of progress of the disease with partial or total relief from all symptoms except those due to ankylosis. If these arthritic cases are seen early in the disease, that is to say, before bony involvement of the joints has occurred, it is possible to obtain a complete cure in many instances. Even in the presence of articular changes it is remarkable to note the improvement in function that occurs after relief from pain. As will be shown in the case reports, one of the outstanding features in the treatment of these patients is the prompt cessation of pain after successful drainage of a causative focus. This drainage may be accomplished by local treatment alone or combined with operative measures. The rhinologic treatment of these chronic arthritic cases in many instances is rather long drawn out, but this is to be expected and the results justify the effort.

At this point I wish to emphasize the fact that treatment of one focus may not materially affect another focus; hence, the necessity for painstaking study of these cases from a diagnostic point of view.

After the relief of pain, signs such as redness and swelling of the joints soon begin to disappear. The temperature subsides to normal, the appetite returns, the patient can sleep, and his whole outlook is changed from that of a hopeless invalid to one of active life.

The lack of standardized methods for studying the various problems concerned in the diagnoses of these obscure conditions creates differences of opinion that render it impossible for men to agree on certain points.

Not infrequently it occurs that several possible foci are present in the same patient; for example, there may be diseased teeth and tonsils, cholecystitis, appendicitis, prostatitis, suppurative sinusitis, and other sources too numerous to mention. All such existing conditions should be taken care of regardless of any complication that may be present, but it may be possible only by exclusion to decide which one is responsible for an accompanying chronic infectious arthritis.

Stauffer,[2] in a study of a group of 200 arthritic patients, found that forty-five had the posterior ethmoids and sphenoids involved, and I am in agreement with the statement of Large,[3] who says, "Sphenoidal and postethmoidal sinus involvement are more often overlooked than any other sinus disease." There are many reasons why this is true, the chief one probably being failure by rhinologists, in many instances, to recognize sinus disease in the absence of pronounced signs and symptoms. Watson-Williams [4] has advanced an interesting hypothesis to account for the fact that these obscure sinus infections are more prone to cause systemic manifestations than are those which are obvious. He thinks that in the frank sinusitis, in which there is a constant stream of pus from the nostrils, there is a profuse outpouring of polymorphonuclear cells with phagocytosis, and the invading organisms are inhibited or ingested so that the patient is protected from toxic absorption. Hence, the graver danger is in the insidious case with the greater likelihood of toxic absorption and spread of the infection through the lymphatics. This type of sinus disease, also, is likely to be unrecognized on account of the absence of pronounced signs of sinus involvement. In this connection I wish to emphasize the absolute necessity for careful and repeated examinations before giving an opinion. It is my feeling that when the soft tissues surrounding the ostium of a sinus are found to be involved in a chronic inflammatory process, viz., redness, swelling, infiltration or increased moisture, it is proper to make a positive diagnosis of a suppurative process within that sinus. Of course, there are numerous other features that enter into the discussion of such a condition; but since this is a distinct nose and throat problem, I will not go into the matter further at this time.

Skillern [5] calls attention to the association of chronic infectious arthritis with sinusitis. He believes that *Streptococcus hemolyticus* is the organism that most often causes arthritis, being distributed from the original focus through the fluid channels. I must admit that we have not been able to recover organisms from the joints, although the effort to do so has been made in several cases.

Rosenow [6] has recovered organisms from glands draining arthritic joints and believes that these organisms when injected intravenously into dogs show an affinity for joints.

Of considerable speculative interest is a possible explanation of the occurrence of joint symptoms as a sequel to sinusitis, as well as the relief of the articular manifestations by treatment of a focus, apparently responsible. In view of the fact that the lymphatics are practically always involved in the presence of sinus disease with joint complications, and that blood cultures are practically always negative, I am inclined to look on the former as the path traveled by the causative factor, whether this be bacteria or the products of bacterial metabolism within the body.

Four cases of chronic infectious arthritis in which improvement was obtained only after treatment of the nasal accessory sinuses are reported here. The relief of symptoms was so prompt and the subsequent his-

* From the Surgical Department, Washington University School of Medicine.

* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Hammond, Roland: The Rôle of the Nose, Throat and Accessory Sinuses in the Etiology of Chronic Infectious Arthritis, J. A. M. A. 65: 1091 (Sept. 25) 1915.
2. Stauffer, N. P.: Laryngoscope 35: 165-168 (Feb.) 1925.
3. Large, S. H.: Ohio State M. J. 21: 23 (Jan.) 1925.
4. Watson-Williams, P.: Brit. M. J. 1: 88 (Jan. 21) 1922.
5. Skillern, R. H.: J. Indiana M. A. 18: 8 (Jan.) 1925.
6. Rosenow, E. C.: Etiology of Arthritis Deformans, J. A. M. A. 62: 1146 (April 11) 1914.

tories are so much alike in every respect that I report these cases as ones in which the cause of the chronic infectious arthritis lay in the nasal accessory sinuses.

REPORT OF CASES

CASE 1.—W. B., a white boy, aged 11 years, seen in 1922 in the St. Louis Children's Hospital, was greatly emaciated. All the joints of the upper and lower extremities were stiff and swollen, and extremely tender and painful on the slightest movement. He had daily fever of about 99 to 100, with a rise to from 103 to 104 every four or five days. The Wassermann reaction was negative. Little or no relief had been obtained by casts and other orthopedic appliances. This condition had been present and growing worse for several years. The only focus we could find was a chronic suppurative process in the left sphenoid sinus. This was accompanied by marked atrophy throughout that side of the nose, with crusting. The tonsils had been removed. The sphenoid sinus was opened freely, and a few cleansing treatments administered after an interval of a week or ten days. Promptly after the operation he stopped having fever, and his joints began to improve as well as his general health.

He went home in 1922, and was not seen again until February, 1926, when he was brought in for observation. He was then a big, strong boy, whose only trouble was his stiff knees. He had no pain even in his knees. The interior of his nose had been restored to such an extent that it looked about normal. He told me that he had picked cotton last fall by rolling his chair between the rows.

CASE 2.—A boy, aged 12 years, was seen in May, 1924, in consultation with Dr. John Zahorsky, six weeks after an attack of so-called influenza. At this time he was so emaciated that his mother could pick him up and move him easily with one hand. He had daily low grade fever, with occasional high fever, lack of appetite and enlarged cervical lymphatics; numerous joints of the upper and lower extremities were swollen, painful and stiff. He also had a heart murmur. He was, of course, confined absolutely to bed. The tonsils had been removed prior to this time.

On examination I found a reddened, thickened mucosa throughout the olfactory fissure on both sides, with an occasional rope of glairy mucus coming down. A diagnosis of sinus suppuration was made, and local treatment was instituted without improvement. In August, 1924, his sphenoid and posterior ethmoid sinuses were opened. Improvement in his joints and his general condition was noticeable within the first week or ten days. He gained 15 pounds (6.8 Kg.) within the first month, and about six weeks after the operation he was well enough to come to my office. He has remained well since.

CASE 3.—N. B. S., a woman, aged 46, seen in the Washington University Dispensary in December, 1925, complained of pain in the left side of the head and face, and painful knee and ankle joints. She had had a nasal discharge for years, which had gradually grown worse. She had become mentally depressed and lost interest in her home and surroundings. About three months previous to this time she began to have severe pains in the left side of the face and around the left eye, with pain and swelling of the joints of both ankles and knees. Physical examination was negative except for tenderness and painful motion of the ankles and knees, and stringy pus in the sphenoidal and ethmoidal regions of the left side of the nose. The nasal mucous membrane was thickened and indurated. Left antrum irrigation was positive. Repeated antrum irrigations brought considerable decrease both in head and joint pain, but did not clear up the nasal suppuration or completely relieve the pain. A left radical antrum, ethmoid and sphenoid operations were done. At the operation, the linings of the sinuses named were removed intact and the microscopic report was chronic infiltration with edema and fibrosis; there was osseous necrosis. Local treatment was carried out for three months, and at the end of that time the patient was entirely free from both joint and head pains and had also recovered from her mental depression and apathy.

CASE 4.—L. H., a woman, aged 23, seen in 1922 for tonsillitis, had had frequent sore throat but no rheumatic symptoms. Tonsillectomy was done at that time. In April, 1923, she was confined to bed for a few days with pain in the right hip joint; she also had an acute pharyngitis. A diagnosis of infectious arthritis was made at this time. In November, 1923, she complained of severe pain in the back, with lordosis; she wore a cast for three weeks, with some improvement of the back symptoms. In January, 1924, she had bronchitis, purulent maxillary sinusitis and acute otitis media. Subsequent to this attack, she had pain in the back, knees, ankles, wrists, elbows, feet and hands, with tenderness on pressure, severe pain on motion, and stiffness. In the spring of 1924, a diagnosis of bilateral sphenoid and ethmoid suppuration was made, and local treatment was carried on until July, 1924, without appreciable effect on the arthritis. At that time the sphenoid and ethmoid sinuses on both sides and the right antrum were opened. She had prompt and total relief from all symptoms. Between July, 1924, and the time this article was written the patient had two or three acute colds, at which time she had a suggestion of a recurrence of the joint symptoms; these have disappeared promptly with treatment of the nasal condition.

University Club Building.

ABSTRACT OF DISCUSSION

DR. W. K. WEST, Oklahoma City: Since our treatment of arthritis from the orthopedic standpoint is so disappointing, we must look to these men in different fields to find the cause, and it is through them also that we are to prevent the condition of arthritis, if possible. I believe that this type of disease is the most difficult for the patient to realize that we are doing as much as possible. People, as a rule, think that arthritis should be treated rather easily, and I find that it is really one of the hardest things I have to treat.

Clinical Notes, Suggestions and New Instruments

THE HEART IN ACETPHENETIDIN (PHENACETIN) POISONING*

WILLIAM D. REID, M.D., BOSTON

New light has been recently thrown on the nature of acetanilid poisoning. It is stated by Young and Wilson[1] to be essentially the same as that produced by aniline. They consider the toxic action to be cardiac rather than respiratory in nature. According to these observers, the first toxic action on the heart appears to be a change in the conduction mechanism.

In an editorial comment[2] on the work of Young and Wilson it is noted that these authors point out that acetanilid, phenacetin (acetphenetidin) and other aniline derivatives frequently produce symptoms similar to those of aniline poisoning. Because of the implication that the toxic action of acetphenetidin on the heart is the same as acetanilid, it is believed worth while to report the following case of severe chronic poisoning from acetphenetidin recently under observation at the Evans Memorial. Only the salient facts and cardiac features will be given.

REPORT OF CASE

History.—A woman, aged 28, entered the hospital, June 24, 1926, because of blueness of the lips and finger tips, progressive weakness and shortness of breath, and frequent "fainting." The blueness appeared gradually about six weeks before, and had been increasing. About the same time, shortness of breath and weakness appeared and had become more severe. She had "fainted" at least twelve times in the past

* From the Evans Memorial.

1. Young, A. G.: Toxicological Studies of Anilin and Anilin Compounds, II, Hematological Studies of Anilin Poisoning, J. Pharmacol. & Exper. Therap. **27**: 125 (March) 1926. Young, A. G., and Wilson, J. A.: Toxicological and Hematological Studies of Acetanilid Poisoning, ibid. **27**: 133 (March) 1926.

2. Acetanilid, Current Comment, J. A. M. A. **87**: 103 (July 10) 1926.

week. There had been considerable headache during the past five months, said to be due to infection of the nasal sinuses. The patient on her own responsibility had used acetphenetidin in large amounts for about five months.

Physical Examination.—The patient's face was pale; there was a marked bluish tinge to the face and hands, very striking in the lips, lobes of the ears, finger tips, tongue and mucous membranes. The patient was breathing rapidly (from 70 to 80 per minute) and shallowly. The voice was faint, just above a whisper. There was no distention of the cervical veins. Examination of the heart revealed the impulse palpable in the fifth interspace at the left midclavicular line. The left border of deep cardiac dulness was at the nipple line; the percussion outline of the heart was within normal limits. The action was regular, the rate from 80 to 86, and no murmurs were appreciated. The heart sounds were softer than usual. The pulses were of small volume and tension. The blood pressure was: systolic, 110; diastolic, 65.

Blood examination revealed: hemoglobin, 58 per cent (Sahli), the color not the red of a normal blood but a deep chocolate color; red cells, 2,740,000; white cells, 7,350. A smear revealed: poikilocytosis, trace; anisocytosis, moderate; polychromatophilia, trace; erythroblasts none in a count of 200 cells. The differential count was: neutrophils, 82 per cent; lymphocytes, 10; endothelials, 2.5; basophils, 2.0; myelocytes, 0; platelets, normal; no parasites.

An electrocardiogram, June 24, revealed normal rhythm; rate, 89; P-R, 0.16 second; P_3, 0.1 millivolt; Q-R-S, 0.06 second; T_3 slightly inverted; axis, normal. There was a rather low voltage of all waves; the R wave measured 0.9 millivolt.

Subsequent History.—The patient was very weak and prostrated and had much trouble in retaining food. Slow but steady improvement ensued with the gradual disappearance of the "cyanosis" and the abnormal chocolate color to the blood. The accelerated breathing was from the first considered to be of "nervous" origin and further observation supported this conception; the respiratory rate fell to normal when the patient was asleep and when she was unaware of being observed.

An electrocardiogram, July 9, when convalescence seemed well established, showed: Normal rhythm; rate, 60; P-R, from 0.16 to 0.18 second; P_3, 0.1 millivolt; Q-R-S, 0.06; T_3 very slightly inverted; axis, normal. The voltage of this electrocardiogram is about the same as that obtained fifteen days earlier. Neither tracing shows evidence of any form of heart block.

COMMENT

This patient was considered to be in a serious condition from chronic poisoning by acetphenetidin. Electrocardiograms taken when the condition was most severe and after convalescence was well advanced did not show any significant difference from each other or from the normal.

Three explanations come to mind. It may be that acetphenetidin does not act exactly as does acetanilid, which was the drug whose toxic effect was studied by Young and Wilson. Perhaps their observations made in animal experimentation (dogs and rabbits were used) do not apply strictly to human beings. Finally, it may be that impairment in conduction in the heart muscle is not a constant feature of poisoning by acetphenetidin.

A noncardiac feature observed by Young and Wilson in their work on acetanilid occurred in this case of poisoning by acetphenetidin; namely, a well marked anemia was present. These authors write: "Prolonged administration of sublethal doses of acetanilid produces anemia and emaciation." However, a definite loss of weight did not occur in our patient. As already noted, the accelerated rate of respiration was not considered to be due to the action of acetphenetidin.

SUMMARY

In a case of acetphenetidin poisoning of severe degree, impairment in conduction in the heart muscle was wholly absent. This fact is at variance with the recent report of Young and Wilson on the toxic effect of acetanilid, although it might readily be assumed that acetphenetidin might act similarly.

270 Commonwealth Avenue.

ECHINOCOCCUS CYST OF APPENDIX*

FRANCIS BREWER, M.D., CHEFOO, SHANTUNG, CHINA

A Chinese soldier, aged 32, had three attacks of abdominal pain in the past ten years. The present, or fourth, attack lasted about twenty-four hours, with severe colic in the epigastrium, vomiting once, and constipation. Examination showed deep tenderness at McBurney's point, but no rigidity. The temperature was 99.4; the total white count, 13,800. Appendectomy relieved the symptoms.

The proximal half of the appendix was bound down to the ileocecal junction by peritoneum. It was 8 cm. long and 1.5 cm. in diameter, with a smooth, white surface, tightly distended, fluctuating, and possessing hydatid fremitus. When opened, a cyst cavity was revealed containing many secondary and tertiary cysts. This cavity extended from the tip to the narrowed base of the appendix, where the lumen was obliterated. A small, incompletely separated compartment at the tip suggested that the process may have started here in the wall of the appendix.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

DIGITOS.—A preparation of water soluble active principles of digitalis leaves, containing not more than 7 per cent of alcohol. It is standardized by determining the lethal dose for guinea-pigs so that 1 cc. is fatal to a 250 Gm. animal.

Actions and Uses.—The same as those of other digitalis preparations. Digitos is suited for hypodermic, intramuscular and intravenous administration, but is not adapted for oral administration, because the water-soluble principles of digitalis are not always well absorbed from the digestive tract. A marked effect on the pulse and heart has been observed within one-half hour after the hypodermic administration of digitos.

Dosage.—The same as that of tincture of digitalis. It may be given subcutaneously, intramuscularly or intravenously in doses of from 0.3 to 4 cc. (5 to 60 minims) at intervals of a day or more.

Manufactured by H. K. Mulford Co., Philadelphia. No U. S. patent. U. S. trademark 208,314.

Digitos Ampules, 1 cc.

Digitos is prepared from dried digitalis leaves. These are extracted with chloroform; the dried marc is extracted with a mixture of ether and alcohol, rendered alkaline with ammonia; this extract is shaken with water and the ethereal layer is evaporated at a low temperature until the ether is removed; water is added and the evaporation continued in vacuo until the alcohol is reduced to about 6 per cent. The residual liquid is adjusted to a definite *pH* range and sterilized by candle filtration.

Digitos is a yellow, transparent or slightly opalescent liquid, free from tannin and contains not more than 0.5 per cent of solids.

SOLUTION PITUITARY EXTRACT SURGICAL-MULFORD.—A slightly acid aqueous solution containing the water-soluble principle or principles of the fresh posterior lobe of the pituitary body of cattle, preserved with 0.5 per cent of phenol. It is standardized by the method of the U. S. Pharmacopeia to have twice the strength of solution of pituitary-U. S. P. X.

Actions and Uses.—See Pituitary Gland, New and Nonofficial Remedies, 1926, p. 281.

Dosage.—See Solution of Pituitary, New and Nonofficial Remedies, 1926, p. 283.

Manufactured by H. K. Mulford Co., Philadelphia. No U. S. patent or trademark.

Ampules Solution Pituitary Extract Surgical-Mulford, 1 cc.

* From the Temple Hill Hospital, American Presbyterian Mission.

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SATURDAY, SEPTEMBER 25, 1926

THE TREATMENT OF INTESTINAL INTOXICATION IN INFANTS

Among the acute gastro-intestinal disturbances of infancy, the condition frequently designated as severe intestinal intoxication is well recognized as of serious moment. True cholera infantum has long been rated among the maladies for which a high mortality is frankly admitted. In disorders in which a definite causation is recognized, it is sometimes possible to use somewhat specific methods of treatment or at least to apply therapeutic procedures on a reasonably rational basis. The management of intestinal intoxication has, by contrast, rarely followed comprehensive plans in the past; the treatment has been guided by the symptoms as they arise and has included liberal use of fluid both enterally and parenterally, intravenous administration of alkali to combat assumed acidosis, and the supply of milk mixtures supposed to be more or less specific for diarrhea. For such a seemingly haphazard routine, our incomplete knowledge of the pathogenesis of the disorder must bear a large measure of blame.

It is gratifying to learn that clinicians are beginning to rebel at what may be designated as isolated procedures or unsystematic treatment for intestinal intoxication. Thus, Powers,[1] at the department of pediatrics in the Yale University School of Medicine, has summarized the coordinated effort at the New Haven Hospital to secure the concerted use of all measures of proved worth, each unit supporting and reinforcing others. This comprehensive plan of treatment seems to be the exemplification of "leaving no stone unturned" in the search for therapeutic success. The essential points in this effort to make the management of the cases less haphazard and symptomatic involve four major procedures: the administration of fluids, the transfusion of blood, the withholding of food for a time, and the administration of food in gradually increasing amounts after the enforced period of starvation. The results have been so gratifying from this comprehensive plan, involving the concordant experiences of many clinicians, that it deserves a somewhat detailed consideration with respect to the fundamentals involved.

Intestinal intoxication is one of the numerous varied conditions in which dehydration or anhydremia plays an important, if not actually the dominant part in the production of threatening symptoms. Depletion of the body fluids, along with which there usually goes a loss of other substances in the augmented fluid output of urine, vomitus and feces, may become directly responsible for the toxic manifestations of the severe diarrheas of infants. Hence a physiologically "balanced" fluid, such as Ringer's solution, is administered promptly by the peritoneal or subcutaneous route, or, usually, in both ways. This is repeated as often as there is indication; and presently water is given by oral or enteral paths when the patient's condition warrants it. Blood transfusion is instituted at the earliest opportunity and repeated if there is no prompt improvement. Several factors may act simultaneously to promote the impaired functions. One measure is not required to await the outcome of an earlier attempt of a different sort; the administration of fluid and blood transfusion are made to supplement or reinforce each other, regardless of the often misleading apparent initial improvement in the patient.

The advocacy of prolonged withholding of food or enforced starvation during the stage of toxemia will probably awaken more differences of opinion than any other feature of Powers' plan. There is seeming logic in the contention that the malnourished should be fed during their illness. It is true that the typhoid patient no longer is kept extremely underfed in the current regimen of high calory feeding; but the diarrheal infant rarely can digest food at the height of his intoxication. Therein lies a decisive distinction. The Yale school follows the advocacy of Marfan[2] in subjecting young patients to the facetiously named "water diet." When alimentary vigor has been sufficiently restored through successful combat of the major symptoms, real food is administered in gradually increasing amounts as dictated by the individual tolerance. Powers has unfeigned indifference with respect to the advocacy of special foods; what one clinician regards as nectar, he remarks, is regarded by others as poison. Drugs are almost forgotten in the scheme.

Of course, infants with intestinal intoxication are not immune to intercurrent infections, but these are usually dealt with most successfully by the principles already expounded. The critical reader may observe that little has been said about laboratory aids. This should not be taken in disparagement of the latter. All true progress in developing a specific therapy must come, Powers admits, as a result of the accumulation from the laboratory of one new fact after another. Until

1. Powers, G. F.: A Comprehensive Plan of Treatment for the So-Called Intestinal Intoxication of Infants, Am. J. Dis. Child. 32: 232 (Aug.) 1926.

2. Marfan, A. B.: Traité de l'allaitement et de l'alimentation des enfants du premier age, ed. 3, Paris, Masson et Cie, 1920; Les affections des voies digestives dans la première enfance, Paris, Masson et Cie, 1923.

such data are fairly complete and their significance is understood, however, Powers insists that the therapeutist cannot safely deduce in a strictly rational manner his procedures from facts that are only isolated portions of the whole truth. Hence he believes it to be safer and wiser for the present, in treating infants with intoxication, to remove from our minds the conception of correcting specific metabolic disturbances by specific treatment, and to go forward with singleness of purpose to give each patient from the outset the benefit of all therapeutic measures that may help to restore normal functions to the cells of the whole organism. This course should be followed, Powers adds, regardless of any evidence from the laboratory as to the normal nature of certain metabolic processes and the disturbed condition of others.

MAN'S CONQUEST OF ALTITUDE

The history of civilization is replete with the records of human success in the most varied sorts of encounters against the forces of nature. Fire, wind and water have not only been subdued by man but also have been put to use in manifold ways that suit his purposes. His resourcefulness in the conquest of natural agencies and in the subjugation of other living creatures has become so largely a part of our everyday life that we cease to appreciate its real marvels. There are, however, further conflicts with nature that call for something more than mere technical ingenuity or mechanical power. Nothing short of the application of scientific knowledge has sufficed to enable man to submerge himself in the depths of the ocean or penetrate the upper reaches of the atmosphere. Physics and chemistry have been compelled to call physiology to their aid in such undertakings.

Whenever the human organism attempts to migrate to regions where the partial pressure of the indispensable oxygen of its environment is markedly altered, there are threats of physiologic distress. Respiration is a sine qua non of our life; it can readily become impaired by profound atmospheric changes. The attempts to work at considerable depths below water have long been imperiled by the danger of the "bends," diver's palsy, or caisson disease on emergence. Success has demanded an understanding of the laws of the solutions of gases under unusual pressures in the body fluids and of their behavior on release. The principle of slow decompression in withdrawal from work at depths under water has become the basis of successful operation for an increasing number of persons engaged in such labor.

Of late, considerable interest has been awakened in the renewed attempts to scale Mount Everest in the Himalayas. For this an ascent of somewhat more than five miles into the air is requisite, taking one into the regions of tremendously reduced partial pressures of oxygen. Many persons experience mountain sickness—a manifestation of oxygen want—at the summit of Pike's Peak at an altitude of less than 15,000 feet, or at similar heights in the Swiss Alps. The possibility of acclimatization at altitudes has been demonstrated. Members of the latest Mount Everest expedition succeeded in existing at mountain levels of approximately 20,000 feet. Work without the aid of supplementary oxygen is admittedly difficult there, even for the most expert and tolerant enthusiasts. It is not primarily snow, ice and cold, but rather the need of oxygen that has thwarted man's efforts thus far to reach the tops of the highest world peaks.

The modern aviator has taken cognizance of this and has endeavored to provide not only his body but also his motor with sufficient oxygen from a compressed supply carried with him. In this battle of respiration the march of progress brought Lieut. John A. Macready of the U. S. Army to an altitude of about seven miles. His record has been surpassed during the past month by the French aviator Jean Callizo, who attained the authenticated height of 12,442 meters (40,809 feet) or almost eight miles. Some idea of the environmental conditions that the body must combat in such regions of the atmosphere is indicated not merely by the low barometric pressure but also by the temperature recorded as lower than 58 F. below zero. Successful insulation to keep warm under such conditions is extraordinarily difficult. Sensations the reverse of those experienced in deep diving occur. The return to the lower denser atmosphere calls for cautious adjustments. As the intrepid flier is reported to have remarked, "Mounting to the edge of heaven is not an easy job."

VERRUGA PERUVIANA AND OROYA FEVER

The longstanding uncertainty or actual confusion regarding the possible causation of Oroya fever and verruga peruviana, diseases of especial interest in the domain of tropical medicine, seem about to be dispelled through the efforts of Noguchi and his collaborators. For many years Oroya fever was regarded as the severe form of an infection of which verruga was merely a milder manifestation. This theory was somewhat challenged in 1913, when a commission from the Harvard School of Tropical Medicine studied both conditions and pointed out that their frequent association in the same persons and their similar geographic distribution did not necessarily indicate that they were caused by the same parasite. Part of the uncertainty has revolved about the rôle of the peculiar intracorpuscular micro-organisms discovered by Barton in 1906 in some cases, and named *Bartonella bacilliformis*.

Reference has already been made[1] to the fact that Noguchi and Battistini have recently isolated a pure

1. The Microbe of Oroya Fever, editorial, J. A. M. A. **87**: 174 (July 17) 1926. Noguchi, Hideyo; and Battistini, T. S.: Science **63**: 212, 1926; Etiology of Oroya Fever: I. Cultivation of Bartonella Bacilliformis, J. Exper. Med. **43**: 851, 1926.

culture of this parasite from the blood of a patient with Oroya fever. Inoculations in monkeys produced infection and gave rise to effects that differ with the mode of introduction of the micro-organism. Intravenous injections resulted in prolonged, irregularly remittent fever, with blood manifestations resembling those in cases of human Oroya fever. Intradermal injection of the same cultures induced at the site of introduction a typical "verruga" indistinguishable from that observed in persons or monkeys directly inoculated with verruga tissue. *Bartonella bacilliformis* was demonstrated both in the skin lesions and in the erythrocytes of the experimental animals.

Investigations of Noguchi and Hercelles[2] at the Rockefeller Institute in New York and the Dos de Mayo Hospital of Lima seem to complete the demonstration of the identical cause of Oroya fever and verruga. Inoculation of suspensions of nodular tissue from patients with verruga have led to manifestations of typical fever and to the isolation, from the blood, of pure cultures of a micro-organism indistinguishable from the strain of *Bartonella bacilliformis* previously cultivated from the blood of an Oroya fever patient. Serologic tests also confirm these close relationships. The entire series of painstaking investigations has now included the essentials of a satisfactory demonstration. A microbic incitant has been isolated in each instance; and the comparative studies of the morphology, cultural properties, pathogenicity and immunologic relations of the micro-organisms concerned seem to confirm the belief that Oroya fever and verruga peruviana are actually different phases of the same disease.

2. Noguchi, Hideyo; and Hercelles, O.: A Preliminary Note on the Etiology of Verruga Peruviana, Science **64**: 121 (July 30) 1926.

THE STANDARDIZATION OF INSULIN

One often hears the remark that science does not recognize the boundaries of nations and that men of science tend to develop an international outlook in their professional work. This is undoubtedly—and fortunately—true so far as the dissemination of knowledge of discoveries in science is concerned. The interchange of ideas, the explanation of new technic, and the descriptions of new products go on through the medium of scientific journals and congresses without regard to the frontiers that so often present barriers to the movement of persons or commodities. There are features of medical importance regarding which it is desirable that there shall be an internationally acceptable uniformity. This applies, for example, to various units of measurement, although agreement in this respect may merely mean convenience in practice. Pounds and kilograms, quarts and liters, grains and grams are readily convertible into each other by the application of simple arithmetic. On the other hand, there are valuable therapeutic agents that are at present standardized only by biologic methods; and in these cases the technic is of the greatest importance for a correct evaluation of the product. Serums and bacterial preparations preeminently belong in this category; and other products, such as some of the hormones and vitamins, so far as they have not been isolated as chemical entities, also require biologic standardization. Several international conferences in relation to this have been convened by the health organization of the League of Nations. Less than five years has elapsed since insulin has come into prominence; yet this remedy was considered at conferences in 1923 and 1925 with the gratifying result that international agreements with regard to the standard for the product, and the methods of applying that standard in biologic assay, have already been reached at this early stage in the history of practical use.[1]

When it was discovered, in 1922, that insulin lowers the blood sugar in normal rabbits and that a parallelism exists between the degree of hypoglycemia and the therapeutic effects of insulin in diabetes mellitus, it was recommended that the pharmacologic assay of products containing the hormone should be based on the rabbit test. Presently it was observed that various experimental factors may modify the outcome. Certain investigators therefore introduced a method of standardization by the determination of the convulsive dose for mice. This species is very sensitive to insulin when the animals are maintained at a fairly high temperature. Another method of bio-assay has consisted in matching the hypoglycemic effects of insulin solutions against the hyperglycemic potency of known doses of the directly measurable epinephrine. The earliest Toronto unit was soon found to be objectionable to clinicians, because less than one unit as originally defined might be adequate in the treatment of some cases of diabetes mellitus. Accordingly, new units of smaller value were introduced, thereby causing some confusion.

The international conference in due time secured the production of a dry international standard preparation by the Medical Research Council of Great Britain, which will undertake to test the permanence of its potency from time to time and submit samples to authorized testing laboratories in various countries, so that the latter may prepare a comparable standard of their own. Approved methods of bio-assay have been adopted, and the unit as provisionally defined by the Insulin Committee of the University of Toronto has been accepted.

In reporting the outcome, the spokesman of the conference, Dr. H. H. Dale of the National Institute for Medical Research, London, has expressed the hope and expectation that the recommendations so harmoniously arrived at will be generally adopted, and that the "unit" of insulin will henceforward have a uniform and world-wide significance, in scientific literature and

1. The Biological Standardization of Insulin, Including Reports on the Preparation of the International Standard and the Definition of the Unit, Pub. 3, Health, League of Nations, **3**: 7 (April) 1926.

practical therapeutics alike, so that the risk of confusion between the "physiologic" and the "clinical" units may be avoided. When the hormone becomes available for use as an isolated chemical entity, a hope that Abel's investigations already seem to justify, the problem of standardization will become far easier.

RELATIVE DEVELOPMENT OF UTERUS AND OVARIES

The development of the organs and tissues of the body is responsive to at least two quite different directive factors. One of these is the inherent or hereditary tendency to growth that determines many characteristics of the species, such as its maximal rate of gain and adult size, its form and its anatomic peculiarities. The other determinant of growth is nutritional, for obviously no organism can develop in a normal manner without food pabulum that is adequate in both kind and quantity. Underfeeding and other types of malnutrition lead to dwarfed or deformed bodies, of which numerous varieties are encountered frequently in medical practice. The newer knowledge of nutrition even supports the belief that there may be specific substances concerned primarily with the proper development of single organ systems. Thus, a directive rôle has been assigned to vitamin E in the normal functioning of the structures concerned with fertility; and in the lack of vitamin A some of the epitheliums of the body seem to suffer far more conspicuously than do other tissues.

A serious difficulty encountered in the experimental study of organ development has resided in the uncertainties of the dietary factors. Now that these are better understood they can better be provided, thereby limiting the variables of development promotion to the inherent growth impulses. In a series of investigations in which this was accomplished by Hammett [1] at the Wistar Institute in Philadelphia, it appeared that, in the animal species studied, the development of the uterus lags behind that of the ovary. It is not even entirely completed during puberty when functional effectiveness of the ovary is attained. Hammett accordingly points out that the reputed production of better animal stock from females mated some time after the attainment of sexual maturity, as compared with stock resulting from pubertal or immediately postpubertal matings, is a consequence of the more mature state of development of the uterus; for it is clear that an incompletely developed uterus may be inadequately equipped to provide optimal nutritive conditions for the fertilized ovum.

One cannot well avoid the sociological implications of such observations, if indeed they may properly be applied to man. If the ovary-uterus differential development is equally valid in human organization, Hammett believes that his observations indicate that the physical inferiority of those races which practice child marriage is in part due to the relative retardation of uterine development. This outcome is evidence and an added argument against child-bearing before full physical development has been reached. It is also important to realize, in view of the new experimental data, that an improvement in dietary and environmental conditions brings about an earlier sexual maturity.

1. Hammett, F. S.: Studies of the Thyroid Apparatus: XXXIII. The Rôle of the Thyroid Apparatus in the Growth of the Reproductive System, Am. J. Physiol. 77: 527 (Aug.) 1926.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Illegal Practitioner Fined.—Following a plea of guilty in the superior court of Kern County to a charge of violating the state medical practice act, Harley Hulse Heddens was sentenced recently to pay a fine of $200 and serve six months in the county jail; the jail sentence was suspended for the present; the fine was paid. Heddens' line of work in Bakersfield is said to have been "abortions and serum injections."

Cooperation with the Corps Area Surgeon.—The state board of medical examiners now places in the envelops of successful applicants for licensure in California a form letter, prepared by the ninth corps area surgeon, which encourages application for commission in the medical officers' reserve corps. The surgeon considers this an effective way of presenting the subject to young physicians, and appreciates the state board's cooperation in securing satisfactory material for the reserve corps in his district.

Study of Surgical Methods.—A charter has been granted and a board of directors elected for the Clinical and Statistical Section of the Los Angeles County Medical Association, the purpose of which is to make available a daily schedule of clinics for physicians who request them, with a standing invitation to attend the clinics as far as facilities permit. Statistics will be compiled on work listed in the daily clinics in order to promote (1) careful study of cases; (2) proper selection of methods by the surgeon, and (3) a more accurate estimate of the value of methods and technic employed.

Society News.—The eye and ear section of the Los Angeles County Medical Association gave a dinner, August 16, in honor of Dr. Samuel K. Kopetzky, New York.——Dr. Egerton L. Crispin, Los Angeles, addressed the San Diego County Medical Society, September 14, on "Diabetes Insipidus."——Dr. James F. Cooper, New York, medical director, American Birth Control League, spent most of July in California lecturing on birth control; among the county medical societies addressed were San Diego, Orange and Riverside. Dr. Cooper also addressed an informal meeting of forty-one physicians at the Professional Building, Pasadena.——Dr. Nathaniel H. Brush addressed the Santa Barbara County Medical Society, August 9, on "Treatment of Delirium Tremens," and Dr. Rexwald Brown on "Is the Medical Profession Coming Under Control of the Laity?"; the former paper was discussed by Drs. Bagby, Means and Ullman, the latter paper by Drs. Ryan, Stevens, Allen Williams, Eaton, Brush, Pierce, Means and Robinson.

DISTRICT OF COLUMBIA

Personal.—Dr. Edward J. Schwartz, health officer at Painesville, Ohio, has been appointed assistant health officer of the District of Columbia to succeed Dr. Rowland H. Ford, resigned. Dr. Schwartz has had experience in public health work with the state boards of health of Ohio and Florida.

Report of Health Officer.—In a report for the last fiscal year, Dr. William C. Fowler, health officer of the District of Columbia, recommended that all preschool children be examined by medical inspectors and that the physical defects found that could be remedied be corrected before they are admitted to the public schools. An effort was made to examine as many pupils as possible in the kindergarten and first grades, the number examined being 3,571, of whom 92.8 per

cent were found to have some physical defect. The most common defects found were defective teeth, diseased tonsils, enlarged glands and poor nutrition. The present corps of medical inspectors of schools was said to be inadequate for this work. There were 12,098 cases of contagious diseases in the district last year, as compared with 5,438 for the previous year; the increase was due almost entirely to an epidemic of measles.

FLORIDA

Estimate of Toll of Hurricane.—As THE JOURNAL goes to press, the number killed in Florida by the hurricane of September 18 is said to be at least 400; the injured, 5,000; the homeless, 50,000; the missing, 150. The communities which suffered most were Miami, Hialeah, Miami Beach, Hollywood, Fort Lauderdale, Moore Haven, Dania, Fort Meyers and Lakeport. The destruction or damage of homes, public works, shipping and other property amounted to millions of dollars. The governor of Florida promptly requested the American Red Cross to take charge of relief work. The President of the United States issued an appeal for funds, and in twenty-four hours the Red Cross announced that the donations amounted to more than $743,000.

ILLINOIS

New County Health Law Proposed.—The state health director announces that the next general assembly will be asked to pass an enabling act which will permit counties to appropriate funds for health purposes. There is no statute at present, he says, which specifically authorizes county officials to appropriate money for public health work; it is stated that cities in this state are far more healthful than rural areas in many respects, and that there is a strong public sentiment favoring the extension of public health work to the country districts.

Pasteurization of Milk in Smaller Cities.—An estimated average of three fourths of the milk in Illinois in cities with a population of 30,000 or over, exclusive of Chicago, is pasteurized. According to the division of sanitary engineering of the state department of health, about 99 per cent of the milk supply of Chicago is pasteurized. Pasteurization is more general in the larger cities of the state than it is in the smaller cities. All cities having populations from 25,000 to 100,000 have pasteurization plants, and 85 per cent of the cities of from 10,000 to 25,000 population have pasteurization plants, while only 2.6 per cent of the cities of less than 1,000 population have pasteurized milk available, and 19 per cent of the cities having a population between 1,000 and 5,000. The per capita consumption of pasteurized milk in cities of less than 1,000 population in Illinois is only $^{2}/_{100}$ quart daily, while in cities of from 50,000 to 100,000 population, the per capita consumption of pasteurized milk is $^{56}/_{100}$ quart a day.

Chicago

Gifts to the University.—In the president's statement at a recent convocation of the University of Chicago, the following gifts, among others, were announced as having been received during the last two years for purposes not included in the general development program of the university:

For the Gilman Smith Contagious Disease Hospital, $283,000.
From the Nursery Association, $45,000.
From Mrs. Anna L. Raymond for use in the medical schools, $100,000.
From Douglas Smith for medical research, $1,000,000.
From the Illinois Training School for Nurses (previously noted in THE JOURNAL), $500,000.

Relief Train Goes to Florida.—A special relief train of seven cars carrying food, clothing, bedding and medical supplies provided largely through the agency of the American Red Cross left Chicago, Monday, September 20, for the storm devastated area of Florida. The medical personnel is reported to have comprised about thirty Red Cross nurses in addition to nurses from various hospitals of the city, and ten physicians from the Cook County Hospital, five each from the Presbyterian and Wesley hospitals, three from Mercy Hospital, three from the city health department, and two each from St. Bernard's, Augustant, West Suburban and Auburn Park hospitals.

Lectures on Tuberculosis.—Dr. Edouard Rist of the Laënnec Hospital and Dispensary, Paris, will deliver an address at the City Club, October 11, under the auspices of the Chicago Tuberculosis Institute with the cooperation of the Institute of Medicine; there will be a dinner at Grayling's ($1.75 a plate), in honor of Dr. Rist, preceding the address. Dr. Ernst Loewenstein, professor of experimental pathology, University of Vienna, will also be in Chicago, October 27, and will deliver an address. Physicians and others interested are cordially invited. Further information can be obtained from the Chicago Tuberculosis Institute, 360 North Michigan Boulevard.

Baby Sanatorium Remains Open.—The sanatorium in Lincoln Park maintained for the last forty summers by the Chicago *Daily News* and the public will now remain open throughout the year. The hospital portion of the building has accommodations for more than forty patients; there will be a staff of nurses and physicians; all service will be free without regard to race or religion. The *Daily News* has always paid for the executive expenses of the sanatorium; the other expenses are met by contributions from the public to the "fresh-air fund." The late Victor F. Lawson contributed $167,000 to the cost of the new building when it was completed in 1921. The sanatorium registered 4,054 babies during the summer of 1925.

Society News.—The Chicago Tuberculosis Institute has been instrumental in sending 153 mothers and children to camps in this region during the summer.——The Chicago Tuberculosis Society will hold a joint meeting with the Chicago Medical Society, October 20; foreign representatives who have attended the International Union Against Tuberculosis in Washington, D. C., will address the meeting.——The Chicago Medical Society gave a dinner, September 14, to the presidents and secretaries of the fifteen branches to plan for the annual dinner of the society and the membership drive, which will begin October 18; this was the second meeting of its kind in the history of the society.——The Chicago Laryngological and Otological Society will meet, October 4, at Stevens restaurant, 16 North Wabash Avenue; the presentation of clinical material will start at 6 o'clock; there will be an address on "Diagnosis of Accessory Nasal Sinus Disease," illustrated by lantern slides, by Dr. Austin A. Hayden; Drs. John A. Cavanaugh and Robert Sonnenschein will speak on "Otolaryngologic Items from Abroad."

INDIANA

Growth of Better Baby Contests.—At the first Better Baby Contest, held at the state fair in 1920, there were seventy-six babies examined; the number examined during the first three years of this work amounted to 845, and in the last three years 3,053, making a total of 3,898.

Survey of Tourists' Camps.—The state board of health announces in its August bulletin that 227 tourists' camps in the state had been inspected at that time, and that 65 per cent of them were found unsatisfactory. There are about 325 tourists' camps in the state. The state board, since 1923, has been inspecting most of them annually. The board adopted regulations for the operation of tourists' camps in that year and placed an inspector in the field to enforce them; he examined the water supplies, investigated the sewage and garbage disposal, and discussed with the owner or operator the general sanitation of the place. The rules adopted provide that if the recommendations of the board are not carried out or the camp is found in an insanitary condition on second inspection, it will be declared a nuisance to public health and ordered closed until such time as the recommendations have been carried out.

KENTUCKY

New Health Officer for Paducah.—Dr. Francis M. Munson, Sioux Falls, S. D., has been elected city health officer of Paducah, it is reported, to succeed Dr. Floyd H. Allen, who resigned to become health officer of Fayette County.

Dr. Wilson Goes to Florida.—Dr. Burrel C. Wilson, Clarkson, for many years county health officer of Grayson County, has been appointed a member of the staff of the state board of health of Florida, with headquarters in Jacksonville. Dr. Wilson will take up his new duties about October 1.

Increase in Rabies.—A report from Hickman states that a boy, aged 8 years, was stricken with rabies while at school, September 9, and died in convulsions; he had been bitten by a rabid dog near his home near Reelfoot Lake and is said to have received the Pasteur treatment for rabies. A newspaper report from Louisville, September 18, states that many children have been bitten by dogs this summer and that two deaths had occurred in Kentucky earlier in the year. It is also reported that hundreds of live stock had been killed by their owners after it had been established that they had been bitten by rabid dogs.

University News.—The University of Louisville School of Medicine opened its fall term, September 13, with the largest enrolment of recent years, sixty-six seniors, seventy-three

juniors, fifty-seven sophomores and ninety freshmen. The university has endeavored to provide extra facilities for the maximum enrolment in order to provide as many physicians as possible. To this end the freshman quota has been increased from seventy-five to ninety, and the upper class quotas to about seventy each. The number of applicants has been more than twice as numerous as new matriculants. Of the freshmen, 65 per cent have come from Kentucky.

MARYLAND

Freshman Class at Johns Hopkins.—There were nearly 400 applicants for entrance to the freshman class of Johns Hopkins University Medical School this fall, and of them seventy-two were adjudged competent to be admitted to the school. The student body comprises a total of 227 students, representing forty-three states and three foreign countries, and among them are thirty-two women.

Cancer Clinics.—Johns Hopkins Hospital and the University of Maryland Hospital will hold cancer clinics in Baltimore, September 27; many of the specialists who attended the cancer symposium at Lake Mohonk, N. Y., under the auspices of the American Society for the Control of Cancer, will attend these clinics. Sessions will be held throughout the day at both hospitals, and invitations have been extended to all Maryland physicians. There will be a luncheon at Johns Hopkins Hospital, and a dinner at the Hotel Belvedere, 7 p. m.

MASSACHUSETTS

Hospital News.—St. Luke's Hospital, New Bedford, has opened a new two story, fireproof, sixty-five bed unit costing $225,000.——The new Norwood Hospital, Norwood, was opened to the public, September 1; it has a capacity of seventy-five beds.——The Boston City Hospital, Boston, has awarded a contract for a new $400,000 nurses' home.

Health at Cambridge.—Telegraphic reports to the U. S. Department of Commerce from sixty-six cities with a total population of about 29,000,000 for the week ending September 11 indicates that the lowest mortality (5.6) was for Cambridge, and that the mortality rate for the group of cities as a whole was 10.3. The mortality rate for Cambridge for the corresponding week last year was 7, and for the group of cities, 11.1.

Unusual Immunity to Smallpox.—Seven persons who had been exposed to smallpox left Orlando, Fla., April 1, by automobile and arrived in Upton, Mass., April 10, with three of the party ill and a fourth convalescent from smallpox. The four who contracted smallpox had never been vaccinated. The other three members of the party had been vaccinated, one of them sixty-four years before. All were revaccinated at this time, and all three showed typical reactions of immunity. A writer in the *Boston Medical and Surgical Journal* states that this outbreak shows that we lack barriers against the introduction of smallpox into the state, but possess (in vaccination) a barrier against the spread of the disease. No other cases developed. Upton is a well vaccinated community and the compulsory vaccination law is thoroughly enforced there.

MISSISSIPPI

Hospital News.—U. S. Veterans' Bureau Hospital no. 74, Gulf Port, is to be enlarged to accommodate 100 additional patients, it is reported.——The new superintendent of the state charity hospital, Dr. Solomon R. Boykin, entertained the staff and the board of trustees at a dinner at the Edwards Hotel the first week in September; Dr. Julius Crisler has been appointed president of the staff of the hospital.

Society News.—The Tate County Medical Society was addressed, August 10, at Tyro by Drs. Ernest L. Collins, John C. Culley, Billy S. Guyton, Eugene S. Bramlett and William R. Gilbert. At the September 14 meeting of this society, among others, an address was given by Dr. Hugh L. Murphy on "Eclampsia," and there was a symposium on nephritis by Drs. Howard F. Byers, J. W. Thompson, William R. Gilbert, Minor M. Powell and George H. McCain.——The South Mississippi Medical Society met at the Charity Hospital, Laurel, September 9, and held a banquet following the scientific session. Dr. George W. F. Rembert, Jr., Jackson, discussed "Diabetes Mellitus"; Dr. Stanford E. Bethea, Hattiesburg, "Diagnosis and Treatment of Typhoid Fever"; Dr. John C. Butler, Laurel, "Acidosis," and Dr. Estes N. Blount, Bassfield, "Lobar Pneumonia."——The Southern Conference on Tuberculosis will be held at the Hotel Mayflower, Washington, D. C., October 2.——The state board of health has published a form for periodic health examinations which is similar to the form published by the American Medical Association. It is being distributed free of charge to physicians in the state.

MONTANA

Nominations for State Board.—The house of delegates of the Medical Association of Montana made the following nominations for the state board of health at its annual meeting in July: Drs. Louis H. Fligman, Ernest D. Hitchcock, Spies V. Wilking, Albert R. Varco and Mark D. Hoyt.

State Society to Publish Bulletin.—The Medical Association of Montana at its annual meeting in July considered the question of continuing its relations with *Northwest Medicine*. It was decided that when the present agreement ends, Jan. 1, 1927, the association will publish its own bulletin for a year.

Resolution About Dogs in National Parks.—At the annual meeting of the Medical Association of Montana, Billings, a resolution was adopted as follows:

WHEREAS, Rabies is apparently increasing in the United States; and

WHEREAS, It is the opinion of many of the health officers that one cause for the increase is the fact that many of the auto tourists take their dogs with them when traveling from one state to another, often from infected areas; and

WHEREAS, It is almost impossible for the states to carry out any law restricting this traffic in dogs; and

WHEREAS, In the case of the states of Montana and Wyoming, nearly all out-of-state tourists visit one of our national parks; therefore, be it

Resolved, That the Medical Association of Montana does hereby request the U. S. Department of the Interior to make regulations prohibiting dogs from national parks, believing that each park is equipped with the proper machinery for the enforcement of such a regulation.

NEW HAMPSHIRE

Society News.—The New England Health Institute, which meets at Concord, N. H., September 27-October 1, will give a course of sixty lectures by authorities on health; there is no charge except the registration fee of $1. The course will be under the auspices of the U. S. Public Health Service, New England state departments of health, the Yale and Harvard schools of public health, and the Massachusetts Institute of Technology and Simmons College. All are invited to attend.——The Strafford County Medical Society will hold its semiannual meeting at Dover, September 30, at 10 a. m. Dr. Howard M. Clute, Boston, will speak on "Goiter," and Dr. Sara M. Jordan, Boston, on "Some Observations from a Gastro-Intestinal Clinic." There will be a banquet at 1 o'clock. The annual meeting of this society will be held in January.

NEW YORK

Annual Outing.—The Erie County Medical Society held its annual outing and public health conference under the presidency of Dr. Robert E. DeCeu at the Jackson Hotel and Health Resort, Dansville, September 18, to which all physicians in the eighth district branch of the state society were invited. The society completed plans at this meeting to assist in the entertainment of the American Public Health Association, which meets in Buffalo, October 11-14. Swimming, golf and tennis, a dinner-dance and moving picture show were the holiday features.

Assistant Physicians in State Hospitals.—The *State Hospital Quarterly*, August, notes the following appointments and resignations of assistant physicians at the state hospital indicated:

APPOINTMENTS

Dr. Rena M. Bigalow, Utica State Hospital.
Dr. Donald W. Cohen, Buffalo State Hospital.
Dr. George D. Huff, Brooklyn State Hospital.
Dr. Thomas Robert McCool, Middletown State Homeopathic Hospital.
Dr. N. E. Stein, Central Islip State Hospital
Dr. Mary J. Cheney, St. Lawrence State Hospital.

RESIGNATIONS

Dr. Louis Berg, Manhattan State Hospital.
Dr. Clarence H. Bellinger, Binghamton State Hospital.
Dr. Clarence O. Cheney, Utica State Hospital.
Dr. Edward J. Corcoran, Manhattan State Hospital.
Dr. Carl W. Lupo, Brooklyn State Hospital.
Dr. Morris Nath, Middletown State Homeopathic Hospital.
Dr. Frederick L. Patry, Utica State Hospital.

War on Noise.—A special squad of seventy-five policemen have been detailed to fight unnecessary noises in hospital streets for ten days, beginning October 1. This will be their sole duty during that time, and, it is reported, violators of the zone of quiet ordinances will be summoned into court "right and left" until a real impression is made on the increasing and uncontrolled din in the hospital streets of

New York. A survey of the noise of the city has been made with scientific apparatus perfected for such work. The noisiest place, according to the *Week's Science*, was found to have an average noise intensity equivalent to a 50 per cent loss of hearing on the part of listeners, and nearly all of the noise was found to be due to street traffic. The disturbing noises are said to be the sudden louder ones—the tooting of horns and the passing of street cars—and the present campaign is directed chiefly toward lessening these.

New York City

Lectures by Professor von Müller.—The trustees and staff of the Mount Sinai Hospital, New York, announced that Prof. Friedrich von Müller will deliver the Edward G. Janeway Lectures at the Blumenthal Auditorium, 1 East Ninety-Ninth Street, October 1 and 2, at 8:45 p. m., on "The Nervous System and Internal Medicine." Physicians are cordially invited.

Society News.—The Medical Society of the County of Kings will begin its Friday afternoon lectures in the library building in October. Dr. Foster Murray speaks on "Treatment of Pulmonary Tuberculosis," October 1; Dr. Lawrason Brown, Saranac Lake, on "Diagnosis of Pulmonary Tuberculosis," October 8, and Prof. Eugen Joseph, Berlin, on "Stones in the Urogenital System," October 22.

Dr. Snow Honored.—At the recent annual meeting of the American Electrotherapeutic Association in Atlantic City, a testimonial dinner was given by the association in honor of Dr. William B. Snow in recognition of his twenty-five years as editor of the association's journal. The occasion was memorable for its tributes of affection and reverence. Dr. Charles F. Stokes was toastmaster, and the speakers included Drs. William S. Bainbridge, George B. Massey, Victor C. Pedersen, Abram Bern Hirsh, Edward C. Titus, Joseph Rivière, of Paris, France, and Dr. Franz Nagelschmidt of Berlin, Germany.

Recreation for the Hard of Hearing.—The New York League for the Hard of Hearing, 126 East Fifty-Ninth Street, has planned a season of recreation from mid-September, 1926, to July 1, 1927. There will be three general meetings, the Christmas festival, December 18; the Annual Lip Reading Tournament for the Metropolitan Championship, March 25, 1927, and the annual meeting of the league, May 3, 1927. The first week of May will be observed by every hard of hearing organization as National Hearing Week. Many clubs during this recreation season will conduct their own programs, and others will present programs jointly. The card club will meet the fourth Wednesday afternoon of each month. A new feature will include musicales, lectures and other attractions. The children will have their own program of monthly parties, Saturday afternoons. The first party will be Saturday, September 25, in which three clubs will join. All members of the league are invited.

OHIO

University News.—Dr. Shiro Tashiro sailed, September 23, to attend the third Pan Pacific Science Congress as a delegate from the University of Cincinnati College of Medicine; forty delegates have been invited to represent the United States. The congress meets in Tokyo, October 30-November 11.

Society News.—Dr. E. Otis Smith, Cincinnati, was the speaker at a meeting of the Sixth Councilor District Medical Society, Mansfield, August 11; his subject was "Kidney Infections"; Dr. Jacob B. Patterson, Wooster, addressed the society on "Treatment of Gonorrhea in the Male," and Dr. Rienzi V. Myers, Mansfield, "Treatment of Gonorrhea in the Female"; Dr. Charles D. Hauser, Youngstown, "Peptic Ulcer," and Dr. James E. Purdy, Canton, "Gallbladder Disease."

Faculty Hospital Proposed.—The city council of Cincinnati has approved the sale of about three acres of land belonging to the Cincinnati General Hospital for a consideration of $10,000, to be used, it is reported, as a site for a forty bed hospital for the members of the faculty of the University of Cincinnati College of Medicine, for which a fund of $400,000 is said to be available. An ordinance permitting the construction of the building will soon be submitted to the council.

State Recognizes National Board Certificate.—In accordance with a resolution adopted at the Toledo meeting of the Ohio State Medical Association requesting the state medical board to consider recognizing licenses issued by the National Board of Medical Examiners, the state medical board has agreed to license physicians holding licenses from the national board. The Ohio board, however, will require evidence of preliminary educational qualifications and the right to pass on the moral and professional character of the applicant.

OREGON

Society News.—The Public Health League of Oregon has begun the publication of a biweekly bulletin, called *Oregon's Health;* it is intended to cover the nonscientific interests of the medical profession and to effect closer cooperation among the various health agencies.

Hospital News.—Dr. Reuben Harrison Mast, Jr., is building a new $20,000 hospital at Myrtle Point.——Shelley's Hospital at Myrtle Point has been opened to the public; hereafter it will be known as the Community General Hospital.——Construction of the first unit of the Columbia Hospital, Astoria, will start soon.

Personal.—Dr. Roy C. McDaniel, Portland, has been elected first vice president of the Great Northern Railway Surgeons' Association.——Dr. Clinton H. Thienes, formerly a fellow of the National Research Council at Stanford University, has been appointed assistant professor of pharmacology at the University of Oregon Medical School.

PENNSYLVANIA

Personal.—The following physicians have been appointed school medical inspectors for Beaver County for the ensuing year: Drs. George J. Boyd, Beaver Falls; Chalmers B. Moore, New Galilee; John H. Boal, Freedom; Joseph A. V. Helfrich, Midland; C. C. Ross, Woodlawn; John L. Miller, Aliquippa, and William H. Shields, Koppel.——Dr. Samuel Stoumen, Bethlehem, has been appointed school medical inspector of Hellertown.——Dr. Jacob Hoffman, Philadelphia, has been awarded a year's research work in Berlin and Vienna for meritorious work during his internship at Mount Sinai Hospital, which he has just completed.

Special Features of State Meeting.—At the annual meeting of the Medical Society of the State of Pennsylvania, Philadelphia, October 11-14, every scientific section will have a clinical session at one of the hospitals. There will be more time devoted this year to open discussions of subjects presented by essayists than was given to this feature last year. The policy of the scientific exhibit this year is to serve the general practitioner, and matters of pure science have been entirely eliminated. Among the demonstrations will be the Dick and Schick tests, recent developments in serology, blood chemistry, the dissection of joints to show the mechanism concerning dislocation and the reduction of fractures, fresh surgical and necropsy material from the city hospitals, and a demonstration of "roentgen-ray nephritis," which was awarded a prize at the last annual session of the American Medical Association. The public meeting will be held Wednesday evening this year at the Bellevue-Stratford Hotel, and Dr. Victor G. Heiser will speak on "Public Health." The annual conference of secretaries will be Tuesday evening at the hotel, and, among others, will be addressed by Dr. Wendell C. Phillips, President of the American Medical Association. The program of entertainment for this meeting includes a theater party for the house of delegates, Monday evening, reception for the women at the home of Dr. and Mrs. William Wayne Babcock, Tuesday afternoon; a smoker for the men, Tuesday evening; the president's reception and ball, Wednesday evening; trips to the sesquicentennial, the navy yard and Valley Forge, luncheons at the Philadelphia County Medical Society's new building and golf every day at the various clubs in and around the city. The Philadelphia Club of Medical Women will give a subscription dinner at the Bellevue-Stratford, October 12, 7:30 p. m., $3.50 a plate. The guest speakers and other features for this meeting were published in THE JOURNAL, August 28.

Philadelphia

Award of Alvarenga Prize.—Drs. Percy S. Pelouze and Frederick S. Schofield of Philadelphia have been awarded the Alvarenga Prize by the College of Physicians of Philadelphia for the best essay on medical research work. The winning essay, the *Atlantic Medical Journal* states, was based on special research in urology.

Society News.—The Philadelphia County Medical Society has arranged for speakers at its Monday luncheons in the grill as far ahead as December 14; they include business men, ministers, educators, judges, physicians, and a member of the cabinet. The society has also arranged for cardiologic

seminars to be held in the auditorium as far ahead as December 17; the subjects announced indicate that an interesting study will be conducted.

SOUTH CAROLINA

Society News.—The Ridge Medical Association has been discontinued and the new Tri-County Medical Society (Lexington, Saluda and Edgefield) formed; the next meeting will be in October under the presidency of Dr. Washington P. Timmerman, Batesburg.——The Lancaster County Medical Society has been reorganized.——The Women's Auxiliary of the state medical association has undertaken to raise $5,000 to erect a memorial to Dr. J. Marion Sims. Some years ago, the state legislature passed an act appropriating $5,000 for this purpose, provided the state medical association raised a similar amount. The efforts of the association made at that time and later, however, were not successful and the original plan failed.

"Dr." Nanzetta Leaves Town.—About four weeks ago, "Dr." L. H. Nanzetta, "the great herbologist," induced a druggist in Greenville to permit him to exhibit "patent medicines" in his drug store. The Greenville County Medical Society thereupon met and passed a resolution to the effect that its members would refuse to deal with any prescription department of any drug store that allowed "Dr." Nanzetta or others who posed as a doctor and sold medicines in his place of business. When the society notified the druggist of its action, "Dr." Nanzetta moved to another store. The committee on public health and legislation of the county medical society then promptly notified the second druggist and "the great herbologist" left town. Nanzetta's wares are said to include "Psoriasis Salve ($2.50 an ounce), "Eczema Salve" ($1), "Indian New Discovery," "Worm Remedy," "Knock-Out for Dog Fits," and other things sufficient to make a list of thirteen remedies. Nanzetta, who is said to have a fortune of about $500,000, has his "Central Laboratories" in Danville, Va.

TENNESSEE

Dr. Crabtree Goes to Chattanooga.—Dr. James A. Crabtree, for many years county director of health at Sevierville, has been appointed director of the bureau of child hygiene of the department of health of Chattanooga. Dr. Crabtree, who is a graduate of the University of Tennessee, will be in charge of medical inspection in the public schools and of the preschool inspection work.

University News.—The University of Tennessee College of Medicine opens its sixty-seventh session, September 27, with 128 applicants for the freshman class, sixty-eight sophomores, fifty-five juniors and forty-seven seniors. The new anatomy building will be ready for use. Dr. James M. Skinner, Jr., has been appointed instructor in surgery; Dr. Morton J. Tendler, instructor in medicine, and Dr. James W. McElroy, instructor in pathology.

TEXAS

Hospital News.—St. Joseph's Infirmary, Fort Worth, has begun the construction of a $400,000 addition which will be five stories high and contain 175 rooms; the only wood used will be in the doors; when furnished and equipped, the unit will cost about $700,000. No additions have been made to this hospital for about twenty years. The old hospital will be used for a school for nurses when the new building is finished.——The Southwestern Insane Asylum, San Antonio, and the municipal hospitals of San Antonio have tendered their clinical material to the U. S. Army School of Aviation Medicine for purposes of instruction; the school was recently moved from Mitchel Field, N. Y., to Brooks Field.

WISCONSIN

Personal.—Dr. Arthur V. de Neveu, deputy state health officer in northern Wisconsin, with headquarters at Rhinelander, has accepted the superintendency of the Milwaukee Emergency Hospital, according to the Superior *Telegraph*. ——Dr. Raymond C. Meyer, Plymouth, has been elected medical director of the new Sheboygan County Tuberculosis Sanatorium on a part-time basis, and Dr. Howard E. Curl, Sheboygan, has been appointed to take charge of the roentgen-ray work. The new institution, Rocky Knoll, will accommodate eighty patients and is situated between Plymouth and Elkhart Lake.

Campaign Against Illegal Practitioners.—The state board of medical examiners has opened a campaign to discover violators of the medical practice acts, and the cooperation of every physician in Wisconsin is requested. The first step will be a state-wide survey to check the names of all practitioners with the license records of the board. In an open letter to the state medical journal, the secretary of the board asks the secretaries of county medical societies to furnish the names and addresses of every person in his district, who, legitimately or otherwise, is affected by those sections of the law which pertain to registration. The board desires the full names and addresses also of all foreign physicians, laboratory workers, roentgen-ray technicians, state borderline men, and those engaged in state penal and charitable institutions. The board will return to the county society a full report on all qualified practitioners for their records, and will undertake an investigation and institute proceedings against those who are not licensed. The assistance is requested also of hospital staffs, boards of health, clinics, or individual physicians who know of any irregularities or violations of the medical practice act.

GENERAL

Dinner in Washington to Foreign Guests.—A subscription dinner will be given, Saturday evening, October 2, at the Mayflower Hotel, Washington, D. C., by the National Tuberculosis Association, in honor of the foreign guests who will attend the International Union Against Tuberculosis and the twenty-second annual meeting of the National Tuberculosis Association. Members and friends of the National Tuberculosis Association are cordially invited; arrangements can be made for special tables for parties organized by state, cities or otherwise, provided notice is given in advance to the executive office of the association, 370 Seventh Avenue, New York. Tickets for the dinner may be purchased at the time of the meeting at the registration desk, $5 per plate. The names of the guests were published in THE JOURNAL, April 17, p. 1224.

Concerns Having Industrial Physicians.—In an investigation of 501 concerns by the National Industrial Conference Board, it was found that 499 of them employed physicians to provide medical care for the 1,100,000 workers employed; 265 physicians were engaged on full time; 355 on part time, and 769 were on call. According to *Law and Labor*, the average cost of this service was $5.14 for each employee in 1924 or, stated otherwise, $1.03 for each $1,000 of the value of the products. The cost of medical service in the plants investigated varied more with the industry than with the size of the plant. The cost was greatest in proportion to the payroll in mining, being $7.52 for each $1,000 of the payroll; in leather tanning, the ratio was below $2 for each $1,000 of the payroll. The duties of the medical departments of the firms investigated were both curative and preventive.

Physicians on Pension Boards.—There are 4,631 physicians throughout the country serving on pension examining boards, whose reports on the examination of veterans are reviewed by physicians in the bureau of pensions in Washington, D. C. The secretary of the interior, Dr. Hubert Work, recently issued an order, the object of which is to raise the qualification of physicians employed in the bureau of pensions; it requires that appointees to those positions in the bureau in the future must have had actual experience in practicing medicine to the exclusion of other work. The United States paid out to physicians last year $457,598 for the examination of pension applicants throughout the country, the total number of which was 29,243. The number of examinations conducted by these local boards was made up of 3,358 for applicants for pensions by Civil War veterans, 61,078 Spanish War veterans and 4,807 disability claims under the general pension law.

News of Epidemics.—An outbreak of infantile paralysis at Syracuse, N. Y., had amounted to forty-nine cases, September 2; it was believed then that the peak of the epidemic had been passed.——An outbreak of ten cases of smallpox was recently reported in Alexandria, La.——Thirty persons in the Deep Eddy district, Austin, Texas, recently were affected by food poisoning thought to have been due to contaminated milk.——Seven persons in North Braddock, Pa., are said to have contracted typhoid from a contaminated well; four members of one family living in the vicinity of Johnstown, Pa., contracted typhoid from a polluted stream; these patients were children from 8 to 16 years of age.——There was an outbreak of six cases of typhoid at Ashtabula, Ohio, the source of which had not been determined up to September 2. ——There were thirty-four cases of typhoid in Johnson County, Ky., September 2; an investigation was being conducted to locate the source of the infection.——There had

been 352 cases of typhoid reported to the state board of health of North Carolina up to August 30; Wilson and Buncombe counties were said to have the largest number.——An outbreak of five cases of typhoid occurred at Brockway, N. Y., among colored workmen, August 30, it is reported.——The Civic Club of Englewood, Tenn., called a special meeting, September 9, to consider the typhoid situation. The mayor, members of the council and a representative of the U. S. Public Health Service were present; the mayor also called a special session of the city council to pass emergency measures; there were said to be twenty-two cases of typhoid in Englewood, which has a population of less than 2,000.

New County Society Secretaries.—The following physicians have recently been elected secretary of the county medical society indicated:

Dr. Samuel C. Clark, Cherry Fork, Ohio, Adams County Medical Society.
Dr. Elmer J. Eklund, Norwood, Minn., Scott-Carver County Medical Society.
Dr. William F. Wilson, Lake City, Minn., Wabasha County Medical Society.
Dr. Charles S. Bumgarner, Davenport, Wash., Lincoln County Medical Society.
Dr. George E. Young, Skowhegan, Me., Somerset County Medical Society.
Dr. Charles W. Putney, Staunton, Va., Augusta County Medical Society.
Dr. Thomas F. Jackson, Dade City, Fla., Pasco-Hernando Medical Society.
Dr. James F. Edwards, Ames, Iowa, Story County Medical Society.
Dr. Joseph A. Thomas, Valdosta, Ga., Lowndes County Medical Society.
Dr. Leonard W. Willis, Bainbridge, Ga., Decatur-Seminole Counties Medical Society.
Dr. John M. Anderson, Barnesville, Ga., Lamar County Medical Society.
Dr. Harvey L. Meador, Van Buren, Mo., Carter-Shannon County Medical Society.
Dr. Leonard W. Deeds, Buckhannon, W. Va., Upshur County Medical Society.
Dr. Cluley C. Hall, Maynard, Iowa, Fayette County Medical Society.
Dr. William M. Rapp, Catskill, N. Y., Greene County Medical Society.
Dr. William H. Force, Ludington, Mich., Mason County Medical Society.

FOREIGN

Tuberculosis in Japan.—Official figures, published recently by the department of home affairs of Japan, show that 114,229 persons died of tuberculosis in Japan in 1924, a rate of 19.32 per 10,000 of population. The death rate was higher in cities than in rural districts.

New Zealand Lowers Infant Mortality Record.—The infant mortality rate in New Zealand for 1925, according to the weekly bulletin of the California State Board of Health, was 39.96 per thousand live births, as compared with 40 in 1924. In one of the larger cities in New Zealand, the rate was 33 and in another, 35. The provisional infant mortality rate in the United States for 1925 was 72.

South African Council Disapproves of "Benefit Society."—The Transvaal Medical Council, Cape Town, it is reported, recently disapproved the association of medical or dental practitioners with the "National Benefit Society, Ltd." The council had been requested to furnish the names of physicians and dentists to be published in the benefit society's membership books. It appears in the *South African Medical Record* that the society charges one shilling per week per member and for this modest sum the following benefits are promised not only to the subscribing member, but to his family, however numerous, until marriage or until 25 years of age:

Medical attendance free.
Special treatment at reduced rates.
Surgical operations at reduced rates.
Teeth extractions at 2 shillings per tooth.
Optical benefits at half ordinary rates.
Medicine at a charge ranging from 1s. to 2s.
Funeral benefits ranging from 3 pounds in case of a child under 2 years to 15 pounds in case of an adult.

Various other "benefits" are listed. The Transvaal Medical Council not only refused to give a list of names of physicians and dentists but replied that the one medical practitioner whose name had already appeared in the membership books of the society be informed that his name should be immediately withdrawn. The *Record* states in part that the only object which could possibly induce any physician or dentist to place his service at the disposal of a society of this kind would be that of "blatant advertising plus obtaining patients by canvass."

Personal.—Dr. B. Griessmann is director of the newly founded official Phonetics Institute at Nuremberg.——The *Klinische Wochenschrift* states that Prof. O. Gans, chief of the clinic for skin disease, University of Heidelberg, has been invited to deliver a series of lectures at the Mayo Clinic, on the histology of the skin.——Prof. J. Bordet, Brussels, has been elected corresponding member of the Spanish Academy of Medicine at Madrid, and Prof. R. Bing, University of Basel, corresponding member of the Belgian Academy of Medicine at Brussels.——Prof. R. Jedlička of the University of Prague presided at the recent first Czechoslovakian Radiologic Congress.——Our exchanges mention that the Russian Academy of Sciences is planning a celebration in honor of the twenty-fifth anniversary of Prof. J. P. Pawlow's first announcement in regard to conditioned reflexes.

Government Services

Navy Personals

Capt. James G. Field, navy medical corps, will retire, November 13, having reached the age limit, and will be succeeded at the New York Navy Yard by Capt. Luther L. von Wedekind, who will be relieved as medical officer of the fourth naval district by Capt. Charles M. De Valin.——Lieut. Fred D. Heegler (j. g.), naval training station, San Diego, Calif., has resigned from the service.——Lieut. James F. Hays (j. g.) has been found qualified for promotion to the rank of lieutenant.——Lieut. Harrison L. Wyatt, Mare Island, Calif., has been ordered to the University of California Medical School for a course of instruction.——Comdr. James A. Randall has been recommended transferred for duty to the naval hospital, Annapolis, and Comdr. Richard A. Warner from the naval hospital, Annapolis, to duty with the Naval Mission to Brazil.——Lieut. John R. Phillips (j. g.) has resigned from the service.——Lieut. Comdr. Melville J. Aston has been recommended for transfer from the naval hospital, League Island, Pa., to the submarine base, Coco Solo, Canal Zone, and Lieut. Comdr. Rolland R. Gasser from the sanitary service of Haiti to the naval medical school, Washington, D. C.——Lieut. James E. Root (j. g.) has been ordered to the James Buchanan Brady Urological Institute, Baltimore, for a course of instruction.

U. S. Public Health Service

Surg. Howard F. Smith has been relieved from duty at Manila, P. I., and directed to assume charge of the Gallops Island Quarantine Station, Boston.——Surg. Harry E. Trimble has been relieved from duty at Baltimore and directed to assume charge of the U. S. Quarantine Station at Marcus Hook, Pa.——Surg. George W. McCoy, Washington, D. C., has been directed to proceed to Brussels, Nottingham, Paris, Berlin, Genoa, Geneva and other European places to inspect establishments engaged in the manufacture of serums, toxins and viruses, and to London, Vienna, Austria, Prague and Budapest to investigate the status and control of biologic products, returning to Washington on completion of those duties.——Surg. Ernest A. Sweet has been assigned to duty at Berlin, Germany.——Surg. Robert W. Hart has been relieved from duty at Manila, P. I., and assigned to duty at U. S. Marine Hospital No. 19, San Francisco.——Senior Surg. Claude H. Lavinder has been assigned as regional director of the district of the North Atlantic with headquarters in New York.——Asst. Surg. Henry A. Rasmussen has been ordered for duty from Ellis Island, New York, to Manila, P. I.——Senior Surg. Claude C. Pierce has been relieved from duty at Chicago and assigned to duty at the U. S. Public Health Service Bureau, Washington, D. C.

Dr. Black Appointed Medical Director of Veterans' Bureau

Dr. Benjamin W. Black has been appointed medical director of the U. S. Veterans' Bureau, to succeed Dr. Edgar O. Crossman. The South Dakota item in THE JOURNAL, September 11, referring to the appointment of Dr. Black as medical director of the Veterans' Bureau at Sioux Falls was erroneous. Dr. Black was appointed executive officer of the medical division of the Veterans' Bureau in 1924, and previously was subdistrict manager of the Salt Lake City office; during the World War, he served overseas with the One Hundred and Fifty-Seventh Infantry. Dr. Black is also a reserve officer of the U. S. Public Health Service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 4, 1926.

More Stringent Regulations for Notification of Puerperal Fever

The ministry of health has sent a communication to county councils and local sanitary authorities enclosing new and more stringent regulations relating to the notification of puerperal fever. It is pointed out that while puerperal fever has been notifiable since the infectious diseases (notification) extension act of 1899 came into force, for a variety of reasons notification of the disease has been far from complete, with the result that not only are the statistics inaccurate and misleading (particularly as regards incidence and fatality rate), but measures for prevention and effective treatment have been seriously hampered. The main reason for the comparative failure to notify is in the fact that puerperal fever is ill defined and is not a specific disease comparable with scarlet fever or diphtheria. There is frequently, therefore, a genuine doubt as to the diagnosis. The term, moreover, bears a connotation that may be thought to imply some slur on the patient or medical attendant, and this may possibly act as a deterrent to notification of a doubtful case. In any event, many cases are not notified, and severe cases are often notified only when it is too late for effective action to be taken. It is therefore important to modify the existing arrangements for notification as soon as symptoms suggestive of septic infection become manifest, in order that adequate nursing and treatment can be insured and the spread of infection prevented. The minister of health is advised that it will ultimately be desirable to replace the term "puerperal fever" by the term "puerperal pyrexia," the latter being defined in terms which involves no theory as to causation.

The Hutchinson Educational Museum

It is curious that the one monument in this country to the greatest clinician of his age, Sir Jonathan Hutchinson, has no connection with medicine. It is an educational museum which he founded thirty-one years ago. But to any one privileged to know that keen and indefatigable worker in many fields, this museum will seem a most appropriate memorial and the one which he probably would have chosen. For he was a great educationist with a fervent belief in the message of science to all and in museums as a means of education. In his Bradshaw Lecture, delivered at the Royal College of Surgeons in 1888, he said: "He who uttered the complaint that much study is weariness of the flesh had doubtless known but little of the delights of a museum, and was thinking rather of the fatigue and disappointments of books." An enthusiastic naturalist, he was one of the last of those surgeons who followed the hunterian tradition of studying life in all its manifestations and not merely human diseases. His recreation was the investigation of the animal and plant life around his country residence at Haselmere in Surrey. His zeal for teaching was equally great, and he established there an educational museum containing objects illustrating a great variety of subjects: rocks, fossils, stuffed animals, skeletons, plants, flowers, birds' nests and eggs. Man was not overlooked, for a remarkable exhibit arranged on the "space for time" principle (which he also followed in his clinical work) illustrated history from the dawn of civilization. Here he used to lecture Sunday afternoons on such varied subjects as the age of the earth, the influence of Wordsworth's poetry (he was a great admirer of Wordsworth), and tuberculosis and leprosy as social problems. In connection with the museum he founded a journal, which he called the *Home University*, with the object of furnishing the student at home with the best subject for a university that could be devised—a journal that was neither a school book nor an encyclopedia—not a journal of science and literature, but partaking of the character of all three. It was almost entirely written by himself. His extraordinary versatility is shown by articles on such diverse subjects as the poet Keats, Etruscan remains, a lecture on shells, a classification of insects, a conversation on the elephant, mammoth and mastodon, the ascent of sap in trees, and the unity of Italy. He had a great faith in the future of museums and definite views on what an educational museum should be. It should avoid pretentiousness and consist of the simplest possible wooden structures. It should preach the gospel of science diagrammatically, pictorially and directly in a tongue understood by the people. After his death in 1913 the museum was taken over by the local authorities. In the interval since his death it has so grown that a larger building has become necessary. At the opening ceremony Dr. F. A. Bather, keeper of the department of geology at the British Museum, unveiled a memorial tablet to Sir Jonathan Hutchinson. He said that the idea of the founder was that the museum should be for the untaught. It was to be a protest against learning exclusively obtained from books.

Another Martyr to the Roentgen Rays

The death of Dr. J. F. Hall-Edwards adds another name to the list of martyrs to the roentgen rays in this country and finishes a career of undaunted heroism. Born in 1858, he was educated at Queen's College, where he acted from 1880 to 1882 as assistant demonstrator of physiology. In 1885 he settled in practice at Moseley (near Birmingham). Here he cultivated his taste for photography and published a paper on photomicrography. In due course he became president of the Aston Photographic Society, of the Moseley Photographic Society, and of the Midland Camera Club. The discovery of the roentgen rays found him prepared, therefore, to study them carefully and enthusiastically. He published "Surgical Radiography" in 1896 and "Radiography" in 1897, and two years later he was acting as surgeon radiographer to the General and the Royal Orthopedic hospitals in Birmingham. In the South African War he served as surgical expert in roentgen-ray work to the Imperial Yeomanry hospitals at Deelfontein and Pretoria in 1900-1901, receiving the queen's medal with four clasps. From this time onward he suffered so severely from roentgen-ray burns that after six years of almost constant pain he consented to the amputation of his left arm and the removal of the greater part of his right hand. He received a civil list pension in 1908 in recognition of the services he rendered to the country by the application of roentgen rays to medicine and surgery. In spite of his disabilities, he applied for and received a commission as temporary major in the royal army medical corps on the outbreak of war in 1914, and was appointed consulting radiographer to the First Southern and other military hospitals in the neighborhood of Birmingham, rendering such good service that he was twice mentioned. Nothing daunted, at the end of the war he continued to practice as a radiologist and obtained from the University of Cambridge in 1920 the diploma in radiology and medical electrology. He also was editor of the archives of the Röntgen Ray Society and president of the British Electro-Therapeutic Society, and an honorary member or fellow of various scientific societies, British and American. In January, 1922, he received the Carnegie Hero Trust medallion, with an annuity of $500. As a recreation, he taught himself painting two or three years before his death.

John George Adami

Professor Adami, vice chancellor of the University of Liverpool, has died in his sixty-fifth year. Born in Manchester, he was educated at Owens College and Cambridge, where he took a first class in the natural science tripos. He then went abroad and studied at Breslau and Paris. On graduating he was appointed house physician to the Manchester Royal Infirmary. But his bent was toward pathology, and he returned to Cambridge as demonstrator of that subject and was elected a fellow of Jesus College. His work there on comparative pathology established his reputation, and in 1892, at the age of 30, he was appointed professor of pathology and bacteriology at McGill University, Montreal. He proved an able teacher, and his prolific contributions to the medical journals gave him a reputation throughout the medical world for acumen and lucid exposition. He was elected F.R.S. in 1905. To Allbutt's System of Medicine he contributed the article on inflammation, which attracted much attention. In 1909 appeared his "Principles of Pathology," which was regarded as the best exposition of the subject. Four years later, in collaboration with his colleague John McCrae, he published a textbook of pathology which became a standard work. His object was not to give a presentation of pathologic data, which had often been well done, but "to analyze these phenomena in an orderly manner." In 1918 appeared "Medical Contributions to the Study of Evolution," which appealed not only to the physician but also to the biologist. His main point was that as the individual adapts himself to changed environment so does the species give rise to germinal variations of an adaptive nature when the environment calls them forth. During the war he served in the Canadian Army Medical Corps, of which he became assistant director of medical services. He was appointed to the war office committee on the medical history of the war and became the historical recorder of the medical services of the Canadian expeditionary force. After the war he did not return to Canada but became vice chancellor of the University of Liverpool. Here he was distinguished as an able administrator and energetic propagandist in the interests of education. Among other distinctions he was past president of the Association of American Physicians.

Protection Against Lead Poisoning

A bill now before parliament proposes to apply certain regulations to male painters using lead paints, but at the same time to prohibit their use by women and young persons. In recent years no industrial disease has been the subject of more prolonged study than lead poisoning among house painters. The Hatch committee of 1914 preceded the international labor conference of 1921, whose draft convention, which asked for the prohibition of lead paints for interior painting, and regulations for exterior work, was endorsed by the Norman committee of 1923. The Norman committee was impressed by the possibilities offered by wet rubbing down with waterproof sand paper, but none the less it recommended "legislation on the lines of the convention." Notwithstanding the fact that no fresh knowledge of processes has been acquired since the inquiry of the Norman committee, the present bill ignores all these recommendations for prohibition and substitutes regulations for interior as well as exterior work. A protest against this has been made by some well known public men and women in a letter to the *Times*. The case against the control of lead poisoning by regulations as regards interior work they hold to be unanswerable. The workers are scattered in parties of two or three, and inspection is impossible, even if wet rubbing down were an absolute safeguard. The position in the potteries, as revealed by the latest figures, has a bearing on the question of regulations versus prohibition. It was hoped that the introduction of the regulations of 1913 in the pottery trade would safeguard all those entering the industry after that date. But cases of lead poisoning are not only rising in number, but are confined this year to those persons deemed to be sufficiently protected. The number of cases in 1925 was forty-seven, of which twenty-four were among male and twenty-three among female workers, and there were already twenty-eight cases in the first half of 1926, all of which were among workers in processes to which the regulations are insufficient even in factories where exhaust fans can be installed and regularly inspected. The signatories demand prohibition of the use of lead paint for interior work (where the chief danger lies) as the only way to assure protection.

PARIS

(From Our Regular Correspondent)

Aug. 25, 1926.

The Reversion of Syphilis

After the war, syphilis decreased in France, as a result of the crusade that was waged against it. The widespread incidence of the disease was due, in part, to the foreign soldiers in French territory and to relaxation of morals that is associated with troubled periods. The American army medical corps organized rigorous prophylaxis and treatment of venereal diseases, and American troops presented the best condition in this regard.

The war and the example of the foreign sanitary service on French soil helped to remove the traditional reticence of the French toward public mention of venereal disease. Public dispensaries sprang up in all parts of Paris, whereas formerly the city had had only two public consultation centers for venereal diseases, one in the Hôpital St. Louis and one in the Hôpital Ricord. Thus combated, syphilis soon decreased rapidly. Furthermore, the decrease has been general throughout Europe wherever the antivenereal crusade was seriously undertaken. In Geneva, the two Red Cross dispensaries encountered last year only one syphilitic chancre. In Belgium, according to Dr. Schroenen, secretary of the Ligue nationale belge contre le péril vénérien, the cases of primary syphilis have decreased 75 per cent. Also in Denmark and Spain the diminution has been continuous. In Vienna, Professor Finger states, the decrease, since 1919, has been 44.6 per cent. Russia seems to be the only country in which syphilis has increased since the war, although the Bolshevists state that the increasing number of chancres treated in the dispensaries is due to the fact that the people are becoming more enlightened and are more ready to consult a physician than formerly.

In France, from 1919 to 1923, syphilis continued to decrease. In 1922, however, the recedence of the disease was less marked. In 1924, the incidence remained practically stationary. Since the middle of 1925, it has again begun to increase. M. Jeanselme, professor of dermatology and syphilology at the Faculty of Medicine of Paris, has conducted an inquiry in Paris and in the large provincial cities, to discover the causes of the increase. He reached the conclusion that the two main causes are (1) the increase of foreign laborers, and (2) the abandonment, by many physicians, of intravenous injections of arsphenamine for newer remedies of less efficacy.

Owing to the heavy losses of the war (greater in France than in any of the allied countries), the diminution of the birth rate, and the scarcity of man power, especially males, there are today three million foreign workers in France: Poles, Czechoslovakians, Jugoslavs, Italians, Spaniards and Algerians. They are a manifest cause of the spread of contagious disease, not so much by reason of the diseases that they bring in as that, owing to the fact that they are grouped together in small colonies, they escape, more than the French workers, sanitary supervision. These colonies are hotbeds

of prostitution. Then again, those infected do not seek treatment so long as their strength keeps up, and the number of such is very great to judge by the number of them who finally seek admission to the hospitals, where they constitute from 10 to 20 per cent of the inmates. Such persons are for the most part unmarried clients of prostitution and remain infective for long periods. In his service in the Hôpital St. Louis, Professor Jeanselme reported that 20 per cent of the patients were foreign syphilitics. In the free dispensaries, the most recent statistics record, among 451 cases of recent syphilis, 260 French patients, 140 foreign patients, and fifty-one natives of northern Africa. The inquiry showed that in 18 per cent of the cases syphilis had been brought in from foreign countries and that in 82 per cent it had been contracted in France, but almost always in the colonies of foreign workers.

The same conditions have been observed in the provinces, especially in the seaports of Marseilles and Havre and in Rouen, where foreign workers congregate in large numbers and where syphilis is continually brought in from without. At Bordeaux, Dr. Pettges states that 33 per cent of the syphilitic patients are foreigners. In the region of Nancy, where there are large numbers of Italians, Poles and Czechoslovakians, the proportion is similar. Dr. Laurent has made the same observations in the vicinity of St. Etienne.

In Belgium also there is a great influx of foreign man power, and syphilis persists although it is on the decrease. Here Professor Jeanselme, together with other physicians of the Ecole de St. Louis, incriminates another cause which is more particularly applicable to France; namely, the inadequate character of the treatment, since physicians show a tendency to abandon intravenous injections of arsphenamine. The discovery of the antisyphilitic properties of bismuth salts by Sazerac and Levaditi has played a part. Jeanselme states that since, in 1921, the investigations of Fournier and de Guérot confirmed the value of bismuth salts, syphilis ceased to retrogress. M. Jeanselme and M. Milian admit that bismuth is useful, particularly in the treatment of neurosyphilis or as supplementary treatment when there is an intolerance for mercury or arsenicals; but they assert that it should not take the place of these in treatment of primary syphilis or when it is desired to bring about the eradication of syphilis. It is on the rapid action of these two remedies that depends the suppression of the local manifestations from which contagion results.

The Bread Question Again

The policy inaugurated by Minister Poincaré to combat the fall of the franc was brought to bear first of all on bread. Last season's grain crop in France was deficient. The government is determined to reduce all foreign purchases in countries in which the value of the franc is placed too low; more particularly, purchases of grain and gasoline. The government has prescribed that at least 80 per cent of the whole grain must be utilized in the milling of flour, to avoid the loss of bran and gluten that results from the manufacture of excessively white bread from flour in which only 70 per cent of the whole grain is used. Furthermore, the introduction of 10 per cent of flour other than wheat flour is permitted. It is planned to prohibit also pastry and cake. It amounts to a return to war bread. In addition, the government plans to prohibit bakers from selling bread that has not stood, since baking, at least twenty-four hours, which is another device to reduce the consumption of bread. Neither the public nor the bakers appreciate the contemplated change. The bakers have protested in the daily press. On the other hand, articles by medical authorities are attempting to persuade the people that fresh bread is harder to digest than stale bread, and that the new measure will make for better health. France consumes more bread per capita than any other country. No damage, therefore, would be likely to result if the consumption were to be reduced. The public mind has become agitated over the bread question, to the extent that imagination has taken the place of sound judgment. Many persons began to complain of troubles of digestion and incriminated at once the "vile bread" two weeks before any change in the method of its manufacture had taken place.

An interesting statement has appeared in a large Paris journal, coming from an experienced but now retired baker. He says that the bread manufactured at present in Paris, in spite of its excellent taste, is no longer palatable when it gets "stale." Since the war, only the bread baked for the army and that which the peasants bake for their own use remain reasonably fresh for several days and without losing its taste. Such bread is made with leaven; that is to say, of fresh dough kept in reserve, and little water is used—only from 34 to 35 per cent, at the most. It is then baked slowly, losing 2 per cent of its weight in baking. Nowadays most bakers employ a more expeditious method. They use yeast, which is added to the flour along with 40 per cent of water. This method yields a very soft dough, which is allowed to ferment and rise for six hours, ordinarily, but sometimes only four hours, or even two hours, when there is need of haste. The bread is then placed in an overheated oven, which causes a crust to form almost immediately, thus imprisoning the interior of the loaf, which remains soft and loses very little water. The weight of the water thus conserved, since it figures in the weight of the bread, constitutes an additional gain for the baker. But the interior of the loaf, being too soft, does not get sufficiently baked, and the consumer does not eat it, and it is wasted. The exclusive consumption of "stale" bread could not, therefore, be easily enforced unless, at the same time, the bakers were compelled to manufacture their bread according to the old French method. Then the consumption of bread would decrease and the country could get along with its subnormal crop of grain until the franc had been sufficiently protected.

The Vital Statistics of France

The statistics published by the minister of health and labor for the first three months of 1926 reveal that the birth rate of France continues to diminish, and that the mortality rate is on the decline, which gives the appearance of stability to the population; but it should be borne in mind that the deaths of foreigners, of whom there are 3,000,000 in France, are included in the statistics, as well as the births of children of foreigners, many of whom will doubtless not remain in the country.

There were 73,840 marriages during the first three months of 1925 and 68,323 during the corresponding period of 1926. The divorces, which numbered 4,204 in 1926, were slightly under the figure for 1925 (4,367). The births show a decrease (195,467 in 1926 as against 199,815 in 1925). Infant mortality declined from 19,412 deaths in 1925 to 16,474 deaths in 1926. The total number of deaths for the first three months of 1925 was 204,391, while, during the corresponding period of 1926, the total was 186,376, so that the excess of births over deaths for the quarter was 9,091, whereas for the first three months of 1925 the excess of deaths over births was 4,576.

The Fakirs

Paris has been visited, during recent months, by a number of fakirs, supposedly Hindus, who have given public exhibitions of wonder working. The matter would not be of any particular importance if certain physicians had not become their dupes. An author by the name of Paul Heuzé has recently removed the mask from these fakirs. After studying their maneuvers and manipulations, he has been able to per-

form all their tricks without deceit. Before a committee of physicians that he asked to convene in a laboratory of the Hôpital Laënnec he allowed his cheeks to be pierced with a long needle, without bleeding, and demonstrated that the whole trick consisted simply in the rapidity with which the needle was withdrawn. He lay down, nude, on a board studded with sharp points without a single one penetrating his skin, and explained afterward that all depended on the distribution of the points, so many being required in each square, so as to be adapted to the weight and surface of the body. He assumed a horizontal position, supported solely by two slats under his forehead and by his feet, and did not bend when a weight was placed on his body. In short, he performed, in an apparently miraculous manner, all the tricks of the fakirs and with the greatest ease, without being hypnotized in the slightest degree. He even had some of the audience perform some of the tricks. Paul Heuzé has functioned on prevous occasions as revealer of the mysteries of spiritualism and the mystifications of ectoplasm, and of photographic plates alleged to have been produced by spirits working in the darkness. The spiritists and the fakirs heaped curses on him, but, at present, he appears to be in perfect health.

BUDAPEST

(From Our Regular Correspondent)

Sept. 3, 1926.

The History of Infant Welfare in Hungary

Apart from the work of elementary education in Hungary and the special institutions for the treatment of physically and mentally defective children, the protection of infants is a work to which the greatest possible importance is attached. Infant life protection was encouraged in the first place by Countess Theresa Brunswick, and it was owing to her interest that the idea of homes for infant children began to gain ground. The first home was founded at Buda, a part of Budapest, in 1828, and in 1836 the Association for the Establishment of Homes for Infant Children in Hungary was already established, with Count Leo Festetics as its first president. Louis Kossuth was one of the first members of the council. The whole movement passed through vicissitudes as a result of the war of independence, fought in 1848-1849. It was not until the sixties that the cause of infant protection took a new lease of life. In 1865 King Francis Joseph and the late Queen Elizabeth gave it their patronage. To the association is due the development of the Froebel Kindergarten and the Ladies' Central Froebel Association. These two associations, together with the Hungarian Infant Protection Association, are still the centers of infant welfare work. In 1876, the state itself began to undertake the maintenance of homes for infants. When the first state home for infants was opened, there were already 215 infant homes in commission. Their present number is considerably reduced, owing to the loss of the greater portion of the territory of the country by virtue of the Trianon treaty. Still they are attended by 18,624 children, under the care of 315 teachers. From this time forward the state provided for infant care with increased activity. A great influence was exerted on the necessary legislation by the infant homes exhibition, arranged in 1889 at Budapest, which convinced everybody of the success attained and at the same time of its importance for the whole country. There were then 703 institutions, with 829 teachers, and a total capital exceeding 4,000,000 crowns, then worth about $800,000. Count Albin Csáky, then minister of public instruction, soon prepared the bill which, as act XV of 1891 on infant welfare, received sanction, April 28, 1891. This act, which is being still further amended, stated the obligation of establishing homes for infants, and provided for compulsory attendance of children at such homes. The objects of infant welfare and the means of attaining them, together with the sources of maintenance of the homes, were thereby defined. The training of infant home teachers, the overseeing and management of the homes, was provided for in harmony with the elementary education act.

History of Child Welfare in Hungary

Child welfare in Hungary is partly in the hands of the state and partly in those of voluntary charitable societies. The state maintains state asylums under the control of the home department and state reformatories under the control of the minister of justice. The mission of the asylum is to save the lives of the children and to reform those who have been mentally and morally neglected. In this respect they work in close harmony with the reformatories. Of the many charitable institutions concerned in child welfare work were the White Cross Society, which had a large institute in Budapest and eleven branches in the provinces, and the First Budapest Association for Children's Asylums. In accordance with act XXI of 1898, a state fund was raised to cover the expense of publicly nursing the sick. This law provided that the expense of nursing, educating and bringing up foundlings to the age of 7 should be defrayed from the same fund. According to acts VIII and XXI of 1901, the state provides for the education of foundlings and such children, below the age of 15, as are declared by the authorities to have been abandoned by their parents. For this purpose the state has to build asylums in various parts of the country. According to a decree issued in 1907 by the home department, the protection of these asylums is accorded to children exposed to evil through their environment and who show evil tendencies. The home department has a separate branch for the protection of children, which, with all the other institutions for the same purpose in the country, is under the control of a state superintendent.

As regards the steps by which the state was led to play such a large part as overparent in Hungary, authentic sources state that from 1871 to 1898 many partial attempts were made to deal with the child question. The matter was in the hands of the local authorities and communes, and they, as is so often the case, refused to make themselves responsible for their foundlings and for the little children of the very poor. As a consequence, these infants and children perished by thousands, and the state, roused by the gravity of the situation, passed a law in 1898 by which the maintenance of all deserted children under 7 was made a charge, not on the local rates, but on the hospital fund, which consists of 5 per cent of the amount raised by all direct taxes. At the same time it was determined that the term "deserted" should be extended so as to include children who were orphans or whose parents neglected or illtreated them, or children whose parents were either unable or unwilling to support them. Up to this time there had been insufficient accommodation for orphans and for neglected children, and the government speedily found itself in difficulties. The state refuge bill of 1901 provided the money for these establishments. In addition to this, it was soon discovered that it was not sufficient to take charge of the children until they were 7, and an additional act was passed by which the state had charge of all deserted children up to the age of 15, unless they were in orphanages or similar institutions. However, the cost of maintaining the children over 7 years of age was to devolve on the local authorities. Thus the state department, with its headquarters in Budapest had, and has at present, charge of all the children in Hungary, and, whether they be rich or poor, they are entitled to protection against cruelty or neglect. The philanthropic societies are all federated and work side by side with the state department to insure the carrying out of the various acts and to safeguard the system in each district.

BELGIUM

(From Our Regular Correspondent)

Aug. 20, 1926.

The Brussels Medical Convention

Mention has already been made of the Brussels medical convention, or Journées Médicales, for 1926. Some important addresses and papers were presented, of which a résumé follows:

THE PERIODIC HEALTH EXAMINATION

Dr. Govaerts pointed out that a periodic health examination is an individual health measure. He has prepared for the periodic health examination an individual record card, which gives first the civil status of the patient to be examined; then labor conditions, individual resources, home conditions, and the general hygienic conditions surrounding the subject. After a questionnaire on all symptoms, the card provides for a detailed account of hereditary and personal antecedents; measurements; the result of blood analyses, urinalysis and stool analysis, and ends with the physical examination.

CEREBRAL TUMORS

De Martel, surgeon of Paris, discussing nerve surgery, gave an exposition of decompressive trephination, radical operations on certain brain tumors (benign tumors), retrogasserian neurotomy of tumors of the medulla, and chordotomy.

SURGERY FOR THE RELIEF OF PAIN

Dr. Sicard enumerated many conditions in which the surgeon may relieve the patient of intolerable pain. There is, for example, the simple division of a tibial nerve, which will relieve the suffering that may follow gangrene. Sicard discussed also spinal and retrogasserian radiculectomy. The author admitted the effect of periarterial sympathectomy on the vascular system, provided the intervention is sufficiently extensive. However, the results appear to him transient and insufficient in painful angiopasm. Ramisection might be successful in the crises of tabes. It would doubtless give at least temporary relief. In closing, the author referred to an operation (still unpublished and very simple) that he has recently applied to women complaining of intense pain over the temple but who are not subject to migraine; namely, the ligation, by a small incision, of the temporal nerve and the temporal artery. This relieved the pain, and, at the same time, suppressed a sinuous temporal artery that was very disturbing to patients.

ASTHMA IN CHILDREN

Dr. Lesné holds that several factors have a part in the etiology and pathogenesis of asthma in children: (1) hereditary instability of the secretions or a constitution predisposed to anaphylactic or colloidoclastic shock; (2) a state of irritability of the nervous system (hypervagotonia) induced by local lesions or by a disorder of general metabolism (alterations of the endocrine glands), and (3) a precipitating cause, acting either directly and reflexly or indirectly through humoral shock, and further promoted by alterations of the digestive tract and the adjacent glands. Symptomatic treatment of an attack is by the use of epinephrine, belladonna, and phenobarbital. The chief thing is to treat the cause. The nasal lesions must be cured in reflex asthma and the patient must be desensitized if the asthma is of anaphylactic origin. Vaccinotherapy appears to act by the shock that it produces. One must modify the shock, therefore, by the use of iodine, arsenic and belladonna, by the amelioration of the gastro-intestinal, hepatic and endocrine functions. Finally, the patient's general condition should be treated by the use of mineral waters and arsenicals, by actinotherapy and by life in the open air.

PROLAPSE OF THE UTERUS

Dr. Phaneuf discussed the surgical treatment of prolapse of the uterus, endorsing more particularly the interposition operation. The Le Fort operation, which is not well known in America, is not well adapted to women of advanced age whose general condition is precarious.

SANITATION IN A TROPICAL CITY

Professor Van Loghem gave an account of the sanitary organizations of Samarang and Batavia, Dutch East Indies, and of the public health measures employed there. He discussed also the crusade against malaria, yaws, cholera and smallpox.

SURGERY OF THE SPLEEN

During the day spent at Louvain, Professor Lemaire reported his results with ligation of the splenic artery in essential thrombocytopenia. The progress of patients operated on by this method is similar to that of patients on whom splenectomy has been performed. The advantage of ligation of the splenic artery is that it entails only slight danger and may be undertaken in acute cases in which splenectomy is contraindicated. The first patient operated on by this method and reported by Lemaire and Debaisieux was 17 years old and had only 18 per cent of hemoglobin.

JAPAN

(From Our Regular Correspondent)

Aug. 11, 1926.

Plague in Yokohama

An epidemic of plague broke out in Yokohama in June. The authorities concerned took every precaution to check the epidemic, inoculating contacts and hunting rats. They succeeded in preventing its spread, although seven patients died. The source of infection is reported to be imported cotton, and according to the International Health Bureau at Singapore, foreign affected districts at that time were Bangkok (one patient died), Saigon (one out of three died), Amoy (nine cases), Singapore (one patient died) and Rangoon (six died).

Height and Foot-Length of Young Korean Prisoners

Mr. T. Miwa in the Kaijo prison, Korea, examined 411 natives between 14 and 19 years of age in the prison, and has published the results. He invented his own system and compares it with others. The shortest foot-length of the examined is 20.3 cm.; the longest is 27.2 cm.; the average length is 23.2 cm. The length increases in proportion to age, but no significant features are recognized in the length in relation to kinds of crime. The relation between height and foot-length may be compared as follows:

System	Longer, Average	Shorter, Average
Bertillon	5.6 cm.	4.4 cm.
Hirose	4.8 cm.	3.8 cm.
Miwa	4.4 cm.	4.1 cm.

The Hirose system is more adaptable to Asiatics than Bertillon's, while Miwa's is superior to Hirose's in the case of young Korean prisoners.

Personal

Prof. Dr. I. Toyama in the Tohoku Imperial University has succeeded Dr. Doi, who retired from his post in the medical college of the Tokyo Imperial University last June and has lately been recommended as a professor emeritus in the university.——Dr. R. Takano, chief of the health bureau in the home department, has been appointed Japanese representative to the International Antituberculosis Congress to be held in Washington next September and will leave Yokohama by an American steamer, August 28.——Dr. Toda, professor in the Tokyo Imperial University, has resigned from

his post of chief of the Tokyo city health bureau. A successor has not been appointed yet. Dr. Manabe, lecturer of the Tokyo Imperial University, has been appointed professor in the physical therapy institute newly established in the medical college of the university.

The Rockefeller Biologic Institute in Japan

Prof. Dr. Hatai, a professor of biology in the Tohoku Imperial University, who has been in America delivering lectures in the Rockefeller Institute, has been entrusted with establishing a new biologic institute in Japan. He returned to Sendai last July to negotiate with the committee of the Saito Ho-on Association for the donation of a site and for the building of the institute. The new institution is expected to mark an epoch in the biologic history of Japan.

International Exchange of Fellowships

According to the health department of the League of Nations, four Japanese medical students will be sent to Europe in accordance with the international exchange of fellowships: Dr. Inoue of the government institute for infectious diseases, to study prophylaxis; Dr. Hara of the institute for the study of nutrition, to investigate light in relation to nutrition; Dr. Izawa of the medical college of Keio University, to study venereal diseases; Dr. Katsumata of the health bureau of the home department, to investigate health insurance laws. They will leave Japan at the beginning of next autumn, and will remain away for nine months. The same number of foreign medical students will be sent to Japan. They will be admitted to the government institute for infectious diseases, the Kitasato Institute, the hygienic institute of the Tokyo Imperial University, the institute for the study of nutrition and the bacteriologic institute of the Tokyo Imperial University. Their term for investigation will be also about nine months.

Epidemic Encephalitis in Japan

Results of investigations of epidemic encephalitis, which broke out in Toyama prefecture in this country last year (1925), have been published by Dr. Izawa in the medical college of the Keio University and Dr. Hirayama in the health bureau of Toyama prefectural office.

From pathologic and clinical evidence, the acute fever was concluded to be the same disease that broke out in the same prefecture in 1924 and several times before that in other parts of Japan. The outbreak was not limited to any especial district in 1925, and it is quite uncertain whether the source of infection had any relation to that of the previous year (1924). Pathologically, there was evidence of the elaboration of an acute poison affecting the whole body, as well as the central nervous system. However, a conspicuous cause was not discovered in the brain or spinal fluid, and the poison did not affect rabbits at all.

Union Hospital by Industrial Association

Under the auspices of the Tokyo credit association, a large hospital named the Tokyo Hospital will be established in the city. More than 270 industrial associations in Tokyo district are participating in its establishment. Nonmembers of the associations may also be admitted into it or treated as outpatients. Branch hospitals will be established in several places in the city.

Mountain Disease on Mount Fuji

Dr. M. Okamura of the medical college of the Keio University has published the results of his investigation of a peculiar mountain disease on Mount Fuji. Investigations were made of 31,986 persons who made ascents of Mount Fuji by Yoshidaguchi (the pass from the north), between July 11 and August 20, 1924, excluding coolies and guides. The author examined cases mainly on the basis of the symptomatology described by Ludwig Pincussen. Care was taken not to confuse the disease with acute gastro-enteritis, beriberi, heart disease, anemia cerebri or mere overstrain, which will often attack mountaineers at the start of climbing. Symptoms are referable to the nervous, circulatory, respiratory and gastro-intestinal systems.

Pleuritis Committee in Japanese Army

Owing to a yearly increase of pleuritis cases in the army, the pleuritis committee was organized in the army five years ago to make inquiries whether or not it is a national weakness or is peculiar to our army. July 31, the committee met in the health bureau of the war department; reports were made, and further work planned.

BERLIN

(From Our Regular Correspondent)

Aug. 28, 1926.

The Effort of Germany to Attain the Lowest Mortality in Europe

For a century, Norway had the lowest mortality in Europe. As early as the middle of the eighteenth century, infant mortality in Norway was as low as it is today in the German *reich* because of the widespread application of advanced principles of social welfare. Hence, the chances of attaining old age in Norway were better than in other countries. In recent years, however, Germany, weakened by war and by scarcity of food, is among the nations in which mortality conditions are most favorable. Oberregierungs-Rat Roesle, in an article in the *Deutsche medizinische Wochenschrift*, points out that Germany does not lack much of holding the European low mortality record. As early as 1920, the mortality of Germany dropped to 15.1 per thousand of population, thus attaining very nearly the prewar minimum. In 1924 and 1925, the rate reached the low figures of 12.12 and 11.9, respectively. The contest with Norway, among the European nations, began in the first decade of this century, when the mortality rate of Denmark threatened to wrest the record from Norway. In 1912, the Netherlands, a new competitor, appeared. The mortality rate of the Netherlands for the years 1923, 1924 and 1925 nearly equaled the world record, which New Zealand, with a rate of 8.3, holds at present. In 1923, the rate for the Netherlands was 9.9, which was as low as that of Australia in 1924, and then dropped to 9.2. The lowest mortality rates after the Netherlands are recorded in Denmark (11 per thousand), Norway (11.1), Sweden (11.4), England and Wales (11.6), Switzerland (11.8), and Germany (11.9). In almost all those countries, however, the birth rate threatens to fall lower than the lowest birth rate record, heretofore held by France. Whereas in France the declining birth rate has, since 1922, been brought to a standstill, as was the case before the war; in all the countries with strikingly low mortality rates the birth rate has fallen markedly. Two countries, England and Sweden, have attained the minimum for France; Switzerland reached it in 1923. Also Germany's birth rate is only slightly higher than that of France. In 1924, the birth rate for Germany (living births) was 20.5 per thousand of population; the rate for France was 19.2, for England, 18.3, and for Sweden, 18.1. The low birth rate, therefore, which results in a low infant mortality rate, influences favorably the general mortality rate. Low mortality rates in the countries in which they obtain go hand in hand with low infant mortality rates. Since the war, a new record for infant mortality has been established. Previously, Norway, with a figure of 6.4 per hundred living births, had the lowest infant mortality, but Sweden for 1923 announced a rate of 5.6 and the Netherlands a rate of 5.7. Switzerland, England and Denmark reached the lowest infant mortality rates of record for their respective countries: 6, 6.9 and 7.7.

Germany, whose infant mortality rate in 1921, 1922 and 1923 hovered around 13, in 1924 recorded a rate of 10.8, thus gaining a position among the countries with the lowest infant mortality rates. The most important aspect of the situation is the excess of births over deaths, which constitutes an expression of the natural increase in population. In increase of population the Netherlands surpasses all other European countries, with an excess of births over deaths of 10 per thousand of population, whereas the corresponding excess in Germany, England, Sweden, Switzerland, France, Belgium and Austria since 1922 has always been below that figure. Also the tuberculosis mortality rate for Germany has fallen considerably, and bids fair soon to overtake the countries with the best records in that regard; namely, Denmark, England, the Netherlands and Belgium. According to Roesle, not only the general mortality rate but also the infant and the tuberculosis mortality rates have thus taken a very different course, during recent years, in Germany than was prophesied in many quarters.

Barrier Between Blood and Brain

Curare, when it is applied locally to the cerebellum, does not produce general excited states, but does produce this effect when it gets into the cerebrospinal fluid. There is a difference, therefore, as to whether the substance is carried to the brain by the circulation or whether there is a direct contact.

Taking these facts as his point of departure, Prof. Lina Stern of Moscow has been conducting experiments for several years to determine the connection between the substances carried by the blood and the substance of the brain. Under the title "Barriers Between Blood and Brain," she recently reported at the second medical clinic of the Charité Hospital on her experiments. Professor Stern tested a number of substances the presence of which in exceedingly small quantities is easily demonstrated, and found that iodine, curare, epinephrine and biliary pigments, when present in the blood, do not act on the brain, whereas bromine, salicylic acid, bile salts, morphine and atropine do have such action, although morphine and atropine do not act on all animals. She found also that antibodies do not pass over into the cerebrospinal fluid—not even when the animals were immunized; anaphylaxins, however, do pass over. Excited states of the brain appeared when the substances that had no effect if contained in the blood were introduced into the cerebrospinal fluid or into the brain itself. Therefore, there is a barrier between the blood and the brain, which prevents the passage of certain substances into the brain. Such a barrier is, however, subject to changes and excitations; for example, the excitations occurring in jaundice are due to changes in the barrier. Also the reflex effect of endocrine substances is influenced by the barrier. Animals show under the influence of bacterial toxins a marked impairment of the function of the barrier, so that then substances pass readily into the brain which, under normal conditions, are held back by the barrier. In chronic intoxications by morphine or alcohol, an accentuation of the barrier function takes place; fewer substances pass over into the brain, so that tolerance is developed.

In animal experiments, therefore, one is able to accentuate or depress the barrier function. Professor Stern assumes that the treatment of general paralysis and of tuberculosis of the spine, by inoculation with malaria, as is now successfully practiced by Wagner von Jauregg, is effective through a modification of the barrier. Professor Stern established further that in young animals the barrier has not yet begun to function—that it begins to develop only after they open their eyes. As man is not born with a mature brain, the barrier function in the child, too, is different from that of an adult.

Marriages

ALVAH LEO ROWE, Lake Worth, Fla., to Miss Louise Virginia Conner of Enterprise, Ala., August 11.

CARL ALFONS BACON, Chicago, to Miss Catherine Crane Lillie of Woods Hole, Mass., September 12.

WILLIAM FREDERIC SCHROEDER, Newton, Kan., to Miss Irene Widick of Emporia, Kan., September 8.

ARLINGTON F. J. LECKLIDER to Miss Gertrude Schryer, both of Cleveland, August 24.

EDWIN KATSKEE, Omaha, to Miss Bernice Helen Diamond of Lincoln, Neb., June 20.

AARON CAPPER to Miss Estelle Spielman, both of Philadelphia, August 29.

Deaths

James Wiley Pettit ⊕ Ottawa, Ill.; Louisville (Ky.) Medical College, 1873; Rush Medical College, Chicago, 1884; founder and medical director of the Ottawa Tuberculosis Sanatorium; past president of the Illinois State Medical Society; for several years president of the Illinois Tuberculosis Association, and a director of the National Tuberculosis Association; member of the House of Delegates of the American Medical Association, 1909, serving on the Reference Committee on Reports of Officers; Civil War veteran; aged 78; died, September 3, at the Illinois Valley Hospital, of cerebral hemorrhage.

William Francis Campbell ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1892; emeritus professor of surgery at his alma mater; past president of the Medical Society of Kings County; member of the American Association of Anatomists; member of the House of Delegates of the American Medical Association continuously from 1915 to 1925 with the exception of 1918 and 1922; on the staffs of the Trinity, Methodist Episcopal, Swedish and Coney Island hospitals; also author of "Surgical Anatomy" and "Surgical Diseases of Children"; aged 58; died, September 7, at the Presbyterian Hospital, of carcinoma.

James Augustus Gardner ⊕ Buffalo; Medical Department of Columbia College, New York, 1895; member of the American Association of Genito-Urinary Surgeons, and American Urological Association (treasurer, 1914-1921, president, 1923-1924), past president of the Buffalo Academy of Medicine; chairman of the Section on Urology of the American Medical Association, 1921-1922; on the staffs of the Memorial, Columbus, and Millard Fillmore hospitals, and the J. A. Adams Memorial Hospital, Perrysburg, N. Y.; aged 55; died suddenly, September 14, at East Orange, N. J., of heart disease.

Charles Fisher Andrew ⊕ Longmont, Colo.; Missouri Medical College, St. Louis, 1895; formerly professor of materia medica and therapeutics, University of Colorado School of Medicine, Denver; president and formerly vice president of the Colorado State Board of Medical Examiners; president of the Colorado Board of Lunacy; on the staff of the Longmont Hospital Association; aged 55; died, August 14, of carcinoma of the stomach.

Jefferson Davis Donald, Hattiesburg, Miss.; University of Alabama School of Medicine, Tuscaloosa, 1884; formerly mayor of Hattiesburg; at one time state senator; for several years member of the state board of health; on the staff of the South Mississippi Infirmary; aged 64; died, August 25, as the result of cerebral hemorrhage suffered about a year ago.

William Freeman Southard ⊕ San Francisco; Medical School of Harvard University, Boston, 1872; formerly emeritus professor of ophthalmology, otology, rhinology and laryngology, College of Physicians and Surgeons, 1896-1918; at one time on the staff of St. Winifred's Hospital; aged 88; died, August 8, at Berkeley, Calif., of cerebral embolus.

Thomas Charles Martin ⊕ Washington, D. C.; Cleveland University of Medicine and Surgery, 1886; Cleveland College of Physicians and Surgeons, 1897; professor of proctology, George Washington University Medical School; on the staff of the Garfield Memorial Hospital, where he died, August 30, aged 62, of chronic myocarditis and nephritis.

Arthur Anderson Will ✠ Oklahoma City, Okla.; Albany Medical College, 1900; assistant professor of rectal surgery, University of Oklahoma School of Medicine; on the staffs of the State University, and St. Anthony's hospitals; aged 51; died suddenly, August 10, of acute pancreatitis.

Robert Davis Alton ✠ Portland, Ore.; University of Wooster Medical Department, Cleveland, 1881; instructor in otolaryngology, University of Oregon Medical School; formerly member of the Montana State Board of Medical Examiners; aged 66; died, July 30, of cerebral hemorrhage.

Frederick O. Williams ✠ Columbus, Ohio; Eclectic Medical Institute, Cincinnati, 1893; Ohio Medical University, Columbus, 1893; past president of the Columbus Academy of Medicine; aged 58; died, August 24, at the Grant Hospital, following an operation for carcinoma.

Albert Ross Simpson, Corning, Ark; University of Louisville (Ky.) School of Medicine, 1882; member of the Arkansas Medical Society; president of the Clay County Medical Society; aged 66; died, August 19, at St. Vincent's Hospital, Little Rock, of carcinoma of prostate.

George De Alton Black, Toledo, Ohio; Northwestern University Medical School, Chicago, 1914; member of the Ohio State Medical Association; aged 39; died, August 31, in a local hospital, of burns received in an explosion in his laboratory.

Delivan W. Scutt, Watkins, N. Y.; Western Reserve University School of Medicine, Cleveland, 1881; member of the Medical Society of the State of New York; member of the board of health; aged 70; died, September 3.

William A. Leiper, Augusta, Ohio; Medical Department of the University of the City of New York, 1886; aged 69; died, September 5, at the Massillon (Ohio) State Hospital, of arteriosclerosis and cerebral hemorrhage.

Richard Homer Mead, Augusta, Ill.; College of Physicians and Surgeons, Keokuk, 1867; member of the Illinois State Medical Society; Civil War veteran; formerly a druggist; aged 79; died, August 30, of carcinoma.

John N. Risjord, Fertile, Minn.; Keokuk Medical College, 1898; member of the Minnesota State Medical Association; formerly mayor; for twenty years health officer; aged 63; died, August 25, of angina pectoris.

Frederick Porter Hammond ✠ New York; Medical Department of Columbia College, New York, 1889; aged 60; died, September 1, at the Lincoln Hospital, of injuries received when struck by an automobile.

Tilford Lynn Putman ✠ Shenandoah, Iowa; Rush Medical College, Chicago, 1885; president of the staff of Henry and Catherine Hand Hospital; aged 67; died, August 26, of acute dilatation of the heart.

James E. Merrill, Amboy, Minn.; University of Minnesota Medical School, Minneapolis, 1896; member of the Minnesota State Medical Association; aged 59; died in August, of carcinoma of the liver.

George Fetters Hartman ✠ Norristown, Pa.; Jefferson Medical College, Philadelphia, 1885; on the staff of the Montgomery Hospital; aged 63; died suddenly, August 27, of angina pectoris.

William Bell Goddard ✠ Topeka, Kan.; Vanderbilt University Medical Department, Nashville, Tenn., 1916; served during the World War; aged 37; died, August 31, of septicemia.

Edward Raphael Dorney ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1912; on the staffs of the Brooklyn, Kings County, and St. Peter's hospitals; aged 40; died, August 26.

James Thomas Harwell, Spartanburg, S. C.; Southern Medical College, Atlanta, Ga., 1883; aged 65; died, August 24, at a local hospital, of injuries received in an automobile accident.

Lester Isaac Simpson ✠ Moran, Kan.; University of Kansas School of Medicine, Rosedale, 1907; served in the M. C., U. S. Army, during the World War; aged 41; died, September 1.

Christian C. Haxel, Fowler, Ill.; St. Louis Hygienic College of Physicians and Surgeons, 1891; member of the Illinois State Medical Society; aged 58; died, August 23, of carcinoma.

Joseph Pettyjohn ✠ P. A. Surgeon, U. S. Public Health Service, Humboldt, Tenn.; University of the South Medical Department, Sewanee, 1897; aged 50; died, in August.

Milo Emery Bushey, Arlington, Minn.; St. Louis College of Physicians and Surgeons, 1892; member of the Minnesota State Medical Association; aged 71; died, August 27.

Norman Barden, Minneapolis; University of Cincinnati College of Medicine, 1919; member of the Minnesota State Medical Association; aged 34; died, August 18.

John Russell Myrick, Hagansport, Texas; Vanderbilt University Medical Department, Nashville, 1887; aged 64; died, May 1, at Mount Vernon, of chronic nephritis.

John Angus MacDonald, Cleveland; University of Buffalo Department of Medicine, 1926; served during the World War; aged 30; died, June 6, of lobar pneumonia.

Leonidas Kirby ✠ Harrison, Ark.; St. Louis Medical College, 1876; formerly president of the state board of health; aged 75; died, August 20, of myocarditis.

Harry Washington Grover, Baroda, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1918; aged 39; died, May 12, of tuberculosis.

John M. Hadden, Seymour, Ill. (licensed, Illinois, 1878); Civil War veteran; aged 84; died, September 5, at the Lakeview Hospital, Danville, of septicemia.

George A. Stumpf, New Orleans; Texas Medical College and Hospital, Galveston, 1878; aged 73; died, August 26, of angina pectoris and arteriosclerosis.

Gertrude Rhodes, Bergerville, Que., Canada; University of Toronto Faculty of Medicine, 1923; aged 30; died, July 28, of chronic abscess of the cerebellum.

Charles D. Edmunds ✠ Bangor, Maine; Medical School of Harvard University, Boston, 1886; aged 67; died, August 17, of uremia and interstitial nephritis.

Roger Sammons Parry ✠ Washington, Pa.; University of Pittsburgh School of Medicine, 1909; served during the World War; aged 42; died, September 2.

James Read Strang ✠ Niskayuna, N. Y.; Albany Medical College, 1889; for two years county coroner; aged 63; died, August 16, of acute endocarditis.

Ernest Eusebe Racine, Everett, Mass.; College of Physicians and Surgeons, Boston, 1897; aged 58; died, September 1, of heart disease.

James Henry Redd, Minneapolis; Northwestern University Medical School, Chicago, 1908; aged 42; died in August, at St. Mary's Hospital.

Prudens C. Sterck, Moline, Ill.; Catholic University, Louvain, Belgium, 1895; aged 54; died, September 8, of cerebral hemorrhage.

W. W. Rhudy, Boonville, Ind.; Medical College of Virginia, Richmond, 1895; aged 55; died, September 3, at Rural Retreat, Va.

William Grant McGee, Tillamook, Ore.; Hahnemann Medical College and Hospital, Chicago, 1897; aged 63; died, August 17.

Otis Mills Linthicum ✠ Rockville, Md.; University of Maryland School of Medicine, Baltimore, 1890; aged 60; died, August 23.

Jesse Irom Armstrong, Cullman, Ala.; Chattanooga Medical College, 1893; died, August 20, as the result of gangrene of the leg.

Herbert C. Weddle, Fourmile, Ky.; University of Louisville School of Medicine, 1911; aged 38; died in August, of dysentery.

Grant Elmer Kirk, Miami, Fla.; Jefferson Medical College of Philadelphia, 1891; aged 61; died, August 15, of angina pectoris.

George W. McNeil ✠ Pittsburgh; Jefferson Medical College, Philadelphia, 1874; formerly postmaster; aged 75; died, July 25.

Aaron Sylvanus Osborne, Hyde Park, Vt.; Long Island College Hospital, Brooklyn, 1873; aged 81; died, August 29.

Thomas J. O'Brien ✠ Clayton, Ind.; Kentucky School of Medicine, Louisville, 1893; aged 55; died, September 6.

George W. Homsher, Camden, Ohio (licensed, Ohio, 1896); county health commissioner; aged 78; died, August 10.

Albert Ellis Bryant, Detroit; Detroit College of Medicine and Surgery, 1910; aged 39; was drowned, August 15.

Charles Davis, Alton, Ill.; St. Louis Medical College, 1861; Civil War veteran; aged 86; died, August 12.

Orley Mason Vaughan, Covert, Mich.; Chicago Medical College, 1881; aged 73; died, August 20.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

NUMOQUIN NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

Numoquin is the proprietary, nondescriptive, therapeutically suggestive name under which Merck & Co. markets ethylhydrocupreine.

Ethylhydrocupreine is a synthetic derivative of cupreine, an alkaloid occurring together with quinine in cuprea bark. Ethylhydrocupreine has the antimalarial and anesthetic action of quinine, but toxic symptoms, such as tinnitus, deafness, amblyopia or amaurosis (retinitis) are more liable to occur than with quinine; while the toxic effects are generally transient, retinitis may result in permanent impairment of vision (amaurosis has resulted from the administration of two 0.25 Gm. doses of the hydrochloride). Ethylhydrocupreine has a specific bactericidal effect on the pneumococcus in vitro, and it exerts a protective action in animals experimentally infected with virulent strains of pneumococci. Clinical investigation seemed to indicate that the drug might prove of value in the treatment of lobar pneumonia when an effective, safe dose was determined. However, Moore and Chesney demonstrated that it was of little value in the treatment of pneumonia, and it is not to be recommended as of service in lobar pneumonia.

A circular letter issued by Merck & Co. directs attention to "the prompt and effective results that have been obtained with Numoquin Base in the treatment of pneumonia"; it offers instruction for the administration of the drug which it is said "preeminently adapts the remedy for use by the general practitioner" and suggests that "ordinarily no other medication is required."

The pamphlet which accompanies the circular letter gives an optimistic view of the results from the administration of ethylhydrocupreine in the treatment of pneumonia. It ignores the important fact that there is no good evidence that this drug reduces mortality in pneumonia.

In the pamphlet it is suggested that, if treatment is started early, an uninterrupted recovery may be confidently expected; also that in many instances it is probably a life saving measure. Furthermore, it is stated that if after three days' treatment no results are obtained, the disease is probably not of pneumococcic origin. The evidence presented is based largely on a report by Felix Mendel (*München. med. Wchnschr.*, 1915, No. 22). According to the pamphlet, Mendel, in discussing twelve cases of lobar pneumonia treated with Numoquin Base and milk diet, stated that four cases achieved a complete lysis in twenty-four hours after the administration of five doses, and that the other eight cases had a more gradual reduction of fever, which was brought about in two or three days. Any one who has seen a large number of cases of pneumonia will realize that this evidence is practically of no value.

Numoquin is unacceptable for New and Nonofficial Remedies because the drug is marketed with unwarranted therapeutic claims and under a name that is therapeutically suggestive.

Formula of Insulin.—According to Prof. J. Casimir Funk of Warsaw, Poland, the probable formula of insulin is $C_{50}H_{80}O_{20}N_{18}S$, with a molecular weight of 1,565. He believes that the structure of the compound is a polypeptide composed of fifteen amino-acids. It also contains sulphur and some highly potent substance.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INFLAMMATION OF SEMINAL VESICLES

To the Editor:—I have been puzzled about a pain that comes after sexual intercourse, and I would like to have some light on it. A man, aged 38, had gonorrhea about fifteen years ago; complement fixation of the blood was negative both for gonococci and the Wassermann test. He is healthy in every respect. He has no pain at any time, except one-half hour after the coitus, when the pain begins and lasts for about five days, gradually diminishing until completely disappearing, to reappear again when he has the next coitus. Urine examination is negative, the prostate is not sensitive, the bladder is normal. The anal sphincter is where the pain is felt at the time of the examination. The anal sphincter is not painful at any other time. I had the man examined by a rectal specialist, and the specialist finds nothing in the rectum. This patient has suffered in this manner for about seven years and he has consulted many physicians and specialists, but with no relief. What could it be?

M.D., Indiana.

ANSWER.—The history of the case and the symptoms reported point strongly to the existence of a chronic inflammation of the seminal vesicles. Such a condition is relieved by massaging the vesicles at regular intervals of three days. In order to be effective, the stripping of these organs has to be carried out with the aid of an instrument. If the club-shaped appliance designed for the purpose of a thorough massage of the prostate and of the vesicles is not available, the handle of a urethral sound may be used. In order to enhance the absorption of the inflammatory infiltration of the vesicular walls, medical diathermy is employed, the prostatic electrode being placed in the rectum, the blocked tin electrode on the abdomen. The current is increased until the patient reports a decided sensation of warmth within the rectum. Each diathermic treatment should extend over a period of thirty minutes and may be repeated every other day.

The intramuscular administration of foreign proteins is sometimes helpful. Most favored are sterilized milk, about 5 cc. These injections may be repeated as soon as the local and general reaction has subsided.

An article by Edward S. Pomeroy, entitled "A Method of Stripping the Seminal Vesicle," appeared in THE JOURNAL, June 19, 1926, p. 1897.

FOODS THAT ARE KEPT WARM AND OVERCOOKED FOODS

To the Editor:—In the review in the Berlin Letter (THE JOURNAL, July 17) entitled "Should Food Be Thoroughly Cooked?" has the word "overcooked" been used in the sense of the original? It seems to me that the work as detailed indicates that the food was held after cooking but that it was not overcooked. If the temperature of the food dropped after the usual period of cooking, then the term "overcooked" gives a wrong impression.

A. W. BITTING, M.D., San Francisco.

ANSWER.—Friedberger's report was published in full in the *Münchener medizinische Wochenschrift*, June 18 and 25, pages 1017 and 1069. He says that the food in the restaurants had been kept warm. Yet he used in his experiments food that had been actually cooked four hours longer, replenishing the water evaporated during the process.

YEASTONE (MERCK & CO.)

To the Editor:—Please give me a report on Yeastone. I see a person here who has a bottle of it and I am curious to know the medical value.

T. B. BRADFORD, M.D., Tennessee.

ANSWER.—This inquiry was written on a circular letter sent to our correspondent by Merck & Co. It states that a trial bottle of Yeastone Pills have been sent. It sets forth the claimed advantages of Yeastone over ordinary yeast preparations. The circular claims that Yeastone is "useful in chronic constipation, digestive disorders, acne, furunculosis and in the deficiency diseases" and asserts that "in therapeutic activity a 1½-grain pill corresponds to one yeast cake."

New and Nonofficial Remedies, 1926, under "Yeast Preparations," discusses the propaganda that has been made in favor of the therapeutic use of vitamin B preparations. It states

that "at all events, the alleged curative or tonic value of special vitamin B bearing products has been emphasized through widespread advertising to an extent unjustified by available evidence." In reference to the value of yeast in acne and furunculosis, the article states that "yeast has often been recommended for internal administration because of its supposed beneficial effects on furuncles, acne, etc. Its adherents assert that it is almost a specific. Many, if not most, clinicians doubt this remarkable effect, which may, after all, be expected from any anticonstipation agent."

A report of the Connecticut Agricultural Experiment Station (Bulletin 240, 1922, p. 40) reports an examination of Yeastone. This included feeding trials, carried out with albino rats, which are summarized thus: "No satisfactory growth was secured in any of the trials. Two cases developed polyneuritis, one of which was acute. The results do not show any merit in the product from the standpoint of water-soluble B vitamin."

PARATHYROID HORMONE IN PARALYSIS AGITANS

To the Editor:—I have several cases of paralysis agitans. If there is any help for them in Collip's parathyroid hormone, I want to use it.

A. HALDEN JONES, M.D., Los Angeles.

ANSWER.—Parathyroid hormone has not been found of value in the treatment of paralysis agitans. Since the pathology of the disorder is usually a slowly progressive degeneration of the corpus striatum and globus pallidus, particularly the large cell component on an arteriosclerotic or senile basis, little hope can be entertained in endocrine therapy. The treatment is purely symptomatic. Scopolamine hydrobromide, 0.6 mg. three times daily by mouth, tends to relieve the rigidity.

EKSIP — ALLERGENS — POSTGRADUATE INSTRUCTION IN DERMATOLOGY — SINUSITIS

To the Editor:—1. What is "Eksip," purported to be an "eat and get well" remedy for diabetes? Some of my patients have had literature from these people and are anxious to break over the traces. 2. Where can I obtain solutions of allergens, according to the method of Coca, or any other reliable method, for the intracutaneous testing of persons with conditions suspected as of allergic origin? 3. Where can a real honest-to-goodness course in dermatology, clinically and pathologically, be obtained in the United States? 4. In the average patient with a polypoid degeneration of the ethmoids, etc., that goes to make up a chronic sinusitis, which has been operated on several times with fair success but not complete recovery, what type of climate offers the best opportunity for relief from recurrent "head colds"? Dry or moist? Please omit my name.

M.D., Pennsylvania.

ANSWER.—1. A complete discussion of Eksip appeared in the department of Propaganda for Reform in THE JOURNAL, May 22, 1926, page 1641. According to the examination made in the laboratory of the American Medical Association, Eksip contains essentially magnesium carbonate and starch—certainly not a specific formula for diabetes.

2. Allergen preparations are manufactured by all the large pharmaceutic concerns, including Squibb, Parke-Davis and Mulford. It is understood that the Swan-Myers Company follows the Coca method in the preparation of its allergens.

3. According to the latest report of the Council on Medical Education and Hospitals, graduate courses in dermatology are offered by the following institutions:

Chicago Policlinic.
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Harvard Medical School.
Johns Hopkins Hospital (residencies).
Mount Sinai Hospital, New York (residencies).
New York Polyclinic Medical School and Hospital.
New York Post-Graduate Medical School.
New York Skin and Cancer Hospital.
Stanford University School of Medicine.
Tulane University Graduate School of Medicine.
University of California Graduate Division, Berkeley.
University of Minnesota Graduate School of Medicine (fellowships).
University of Pennsylvania Graduate School of Medicine.

It is suggested that our correspondent write to each of them for a descriptive catalogue concerning their courses.

4. There is no scientific evidence as to the exact virtues of either dry or moist climates for the condition mentioned. There are only clinical impressions, not especially well substantiated.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 9-10. Sec., Dr. James W. Walker, Fayetteville.

ARIZONA: Phoenix, Oct. 5. Sec., Dr. W. O. Sweek, Phoenix.

CALIFORNIA: Sacramento, Oct. 18-21. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, Oct. 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: State Board of Healing Arts, New Haven, Oct. 9. Prerequisite to license examinations. Box 1895, Yale Station, New Haven. Medical Examining Board, Nov. 9-10. Sec., Dr. Robert L. Rowley, 79 Elm St., Hartford. Homeo. Medical Examining Board, Nov. 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Oct. 12. Sec., Dr. Edgar P. Copeland, Suite 110, 1801 Eye Street, Washington.

FLORIDA: Tallahassee, Oct. 12-13. Sec., Dr. William M. Rowlett, Box 603, Tampa.

GEORGIA: Atlanta, Oct. 12-14. Sec., Dr. Luke Robinson, Covington.

HAWAII: Honolulu, Oct. 11-14. Sec., Dr. A. L. Davis, 1254 Emma St., Honolulu.

IDAHO: Boise, Oct. 5. Commissioner of Law Enforcement, Mr. F. A. Jeter, Boise.

ILLINOIS: Chicago, Oct. 5-7. Supt., Regis. and Education, Mr. V. C. Michels, Springfield, Ill.

IOWA: Des Moines, Nov. 16-18. Commissioner, Dept. of Health, Dr. Henry Albert, Des Moines.

KANSAS: Topeka, Oct. 12. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Portland, Nov. 9-10. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 9-11. Sec., Dr. Frank M. Vaughan, Room 144, State House, Boston.

MICHIGAN: Lansing, Oct. 12-14. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

MINNESOTA: Minneapolis, Oct. 5-7. Sec., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul.

MONTANA: Helena, Oct. 5-7. Sec., Dr. S. A. Cooney, Helena.

NEVADA: Carson City, Nov. 1. Sec., Dr. Simon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 19-20. Sec., Dr. Charles B. Kelley, Trenton.

NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. W. T. Joyner, Roswell.

RHODE ISLAND: Providence, Oct. 7-8. Sec., Dr. B. U. Richards, Providence.

SOUTH CAROLINA: Columbia, Nov. 9. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Fort Worth, Nov. 16-18. Sec., Dr. T. J. Crowe, 918-919 Mercantile Bank Bldg., Dallas, Texas.

UTAH: Salt Lake City, Oct. 5. Director, Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

WYOMING: Cheyenne, Oct. 4-6. Sec., Dr. G. M. Anderson, Cheyenne.

Illinois January Examination

Mr. V. C. Michels, superintendent of the Illinois Department of Registration and Education, reports the written examination held at Chicago, Jan. 19-21, 1926. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 68 candidates examined, 58 passed and 10 failed. Sixteen candidates were licensed by reciprocity. The following colleges were represented:

PASSED		Year Grad.	Per Cent
Howard University School of Medicine		(1924)	76
Bennett Medical College		(1914)	78
Chicago Medical School		(1925)	75
College of Med. and Surg. (Physio-Medical), Chicago		(1911)	79
General Medical College, Chicago		(1924)	83
Loyola University School of Medicine	(1925) 77, 78, 79, 84, 86, 78, 81, 81, 81, 82, 82, 85, 85, 85, 85, 85, 86, 86, 86, 86, 87, 89,	(1926) 84	89
Northwestern University Medical School		(1925)	81, 86
Rush Medical College		(1925)	76
University of Illinois College of Medicine		(1926) 79,	81, 87
Indiana University School of Medicine		(1924)	79
St. Louis University School of Medicine		(1920)	81
Creighton University College of Medicine		(1924)	78
University of Nebraska College of Medicine		(1924)	80, 81
Albany Medical College		(1909)	81
Cornell University Medical College		(1923)	88
Meharry Medical College		(1923)	76
Vanderbilt University School of Medicine		(1923)	86
Medical College of Virginia		(1914)	81
University of Manitoba Faculty of Med.	(1919) 83,	(1921)	75
McGill University Faculty of Medicine	(1923) 82,	(1924)	82
Comemian University of Bratislava, Czechoslovakia		(1922)*	79
University of Berlin, Germany		(1921)*	77
University of Hamburg, Germany		(1924)*	77
University of Wurzburg, Germany		(1924)*	79
University of Naples, Italy		(1920)*	75
University of Palermo, Italy		(1923)*	80
University of Cluj, Roumania		(1922)*	75

FAILED		Year Grad.	Per Cent
Chicago Medical School	(1922) 73,	(1925)	79†
Loyola University School of Medicine		(1916)	67

Barnes Medical College, St. Louis	(1904)	‡
Meharry Medical College	(1905)	51
University of Naples, Italy	(1916)* 42, (1919)* 65, (1920)* 70, (1921)* 57	
University of Moscow, Russia	(1918)*	87‡

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Cooper Medical College		(1899)	California
College of Physicians and Surgeons, Chicago		(1908)	Utah
Rush Medical College		(1918)	Wisconsin
Indiana Medical College, Indianapolis		(1906)	Indiana
State University of Iowa College of Medicine		(1923)	Iowa
University of Kansas School of Medicine		(1920)	Kansas
Johns Hopkins University Medical Department		(1914)	Alabama
University of Maryland School of Medicine		(1921)	Maryland
University of Michigan Medical School		(1922)	Michigan
University of Minnesota Medical School		(1924)	Minnesota
St. Louis University School of Medicine		(1923)	W. Virginia
Ohio State University College of Medicine		(1921)	Ohio
Meharry Medical College		(1913), (1923)	Tennessee
Marquette University School of Medicine		(1909)	Wisconsin
University of Vienna, Austria		(1921)*	Wisconsin

* Verification of graduation in process.
† Failed in clinical examination only.
‡ No grade given.

Nebraska June Examination

Mr. Lincoln Frost, secretary of the Department of Public Welfare, Bureau of Examining Boards of Nebraska, reports the written examination held at Omaha, June 8-10, 1926. The examination covered 10 subjects and included 90 questions. An average of 70 per cent was required to pass. Of the 94 candidates examined, 92 passed and 2 failed. Seven candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Harvard University		(1924)	84.5
University of Pennsylvania School of Medicine		(1924)	87.5
Creighton University College of Medicine		(1925)	89.5, (1926) 82.5, 82.6, 82.7, 83.1, 83.1, 83.3, 83.7, 83.8, 84.1, 84.1, 84.2, 84.3, 84.5, 84.6, 84.6, 84.7, 84.9, 84.9, 85, 85.1, 85.2, 85.5, 85.5, 85.8, 86.1, 86, 86.3, 86.5, 86.6, 87.1, 87.3, 87.7, 88.4, 88.4
University of Nebraska College of Medicine		(1926)	81.3, 81.8, 81.9, 82.4, 82.4, 82.5, 83, 83.3, 84.1, 84.5, 84.6, 84.6, 84.7, 85, 85.1, 85.1, 85.2, 85.2, 85.3, 85.3, 85.3, 85.4, 85.4, 85.5, 85.7, 85.8, 85.8, 86, 86, 86.1, 86.1, 86.1, 86.1, 86.2, 86.3, 86.3, 86.3, 86.4, 86.5, 86.5, 86.7, 86.9, 86.9, 87, 87, 87.1, 87.4, 87.5, 87.5, 87.5, 87.5, 87.7, 88.2, 89.4, 90.3

College	FAILED	Year Grad.	Per Cent
University of Nebraska College of Medicine		(1926)	82,* 86.5*

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, San Francisco		(1914)	California
Chicago Homeopathic Medical College		(1902)	Kansas
Northwestern Univ. School of Med.	(1918) Iowa, (1922)		Michigan
State University of Iowa College of Medicine		(1921)	Iowa
St. Louis University School of Medicine		(1919)	Missouri
University of Manitoba Faculty of Medicine		(1899)	Minnesota

* Fell below 70 per cent in one subject only.

Louisiana June Examination

Dr. Roy B. Harrison, secretary of the Louisiana Board of Medical Examiners, reports the written examination held at New Orleans, June 10-12, 1926. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 55 candidates examined, 53 passed and 2 failed. Five candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Emory University School of Medicine		(1925)	87.1
Loyola University School of Medicine		(1924)	89.5
Tulane University of Louisiana School of Medicine		(1923) (1924) 86.4, 87.9, (1926) 84.5, 84.7, 85.1, 85.8, 85.9, 86.4, 86.6, 87, 87, 87.2, 87.2, 87.5, 87.6, 87.6, 87.7, 87.8, 88, 88.1, 88.3, 88.3, 88.4, 88.4, 88.5, 88.9, 89.2, 89.3, 89.6, 89.6, 89.9, 90.2, 90.3, 90.4, 90.6, 90.7, 90.7, 91.2, 91.2, 91.3, 91.5, 91.8, 92.9, 94.8	87.2,
Johns Hopkins University Medical Department		(1924)	88.9
St. Louis University School of Medicine		(1924)	88.5
Memphis Hospital Medical College		(1911)	76.8
University of Tennessee College of Medicine		(1925)	83.6
Baylor University College of Medicine	(1925) 86.7, (1926)		86.7

College	FAILED	Year Grad.	Per Cent
Memphis Hospital Medical College		(1910)	60.3
College of Physicians and Surgeons, Dallas		(1908)	59.8

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1917)	Kansas
Tulane University of Louisiana School of Medicine		(1915) (1920) Mississippi	Alabama
St. Louis University School of Medicine		(1924)	Missouri
University of Cincinnati College of Medicine		(1909)	Ohio

Book Notices

THE CLINICAL INTERPRETATION OF THE WASSERMANN REACTION. By Dr. Robert A. Kilduffe, A.B., A.M., M.D., Director Laboratories, Atlantic City Hospital. Cloth. Price, $2.50. Pp. 203, with charts. Philadelphia: Lea & Febiger, 1926.

"To furnish in accessible form such succinct information as is necessary for the proper clinical application of the test and the interpretation of its results, to consider the status of the reaction as applied to the recognition and management of this disease, and to present briefly the salient data on which this estimation is based, is the purpose of this little book." In concise form it presents valuable material meriting careful perusal. It is divided into twenty-nine short chapters, each of which covers a different aspect of the subject and offers much of value. Little attention is paid to technic, as the author is not writing for the serologist or syphilologist, but enough of the basic principles of the test are presented to enable the reader to understand just what should be the significance of a serologic report. Kilduffe points out that, in the interpretation of this test, the serologist and the clinician must work in cooperation in order that the laboratory findings in any special case may be given the proper evaluation. As the complement fixation test is the most constant and the most delicate single symptom of syphilis, it is rational to demand of the serologist that he be competent and use a properly controlled technic; while of the clinician it should be required that he furnish such information to the serologist as he would give to any other consultant, if the serologist is to be called on to interpret the test. This work may be unhesitatingly recommended to the general worker and, especially, to the clinician as a clear, concise and accurate statement of the basis on which a proper interpretation of this most important test should rest. The laboratory worker will find much to assist him in his daily routine and in his consultation with his client, while the clinician will gain much aid in his diagnostic work and be much the more qualified to understand and interpret the results of his serologist.

LOCAL ANESTHESIA IN OTOLARYNGOLOGY AND RHINOLOGY. By James Joseph King, A.B., M.D., Assistant Surgeon in Otology, New York Eye and Ear Infirmary. With Supplement on the Toxic Effects of Local Anesthetics, containing the complete reports of the various committees of the American Medical Association made to the Therapeutic Research Committee of the Council on Pharmacy and Chemistry. Edited by Emil Mayer, M.D., Chairman, Research Committee on Local Anesthesia. Preface by Robert A. Hatcher, M.D., Professor of Pharmacology, Cornell Medical College. Cloth. Price, $5. Pp. 205, with 21 illustrations. New York: Paul B. Hoeber, Inc., 1926.

This is a comprehensive and authoritative discussion of the subject of local anesthesia in otolaryngology and rhinology. Following a short review of the history of local anesthesia and a bibliography of the important controbutions that went to make this history, the author discusses briefly but clearly the pharmacology and history of cocaine, procaine hydrochloride, other cocaine substitutes and epinephrine. In greater detail there is reviewed the subjects of toxicity, pathology and treatment of intoxication by local anesthetic agents. Then follows a well handled group of chapters on the technic of local anesthesia in surgery of the nose, sinuses, pharynx and larynx. The last part of the book is concerned with the painstaking reports of different committees of the American Medical Association to determine the toxic effects of local anesthetics. These reports deal in an illuminating manner with the advantages and disadvantages of local anesthetics in nose and throat work, as well as the toxic effects of these agents, and are invaluable for any one interested in this subject.

GEBURTSHILFLICHE TAGESFRAGEN. Von Med.-Rat Dr. Kupferberg, Direktor der Hebammenlehranstalt in Mainz, und den Anstaltsärzten Dr. Balhorn, Dr. Nelius, Dr. Koch und Dr. Werlé. Paper. Price, 4.50 marks. Pp. 110. Leipsic: Repertorienverlag, 1925.

This is the twenty-fifth of a series of "Kleine klinische Bücherei" for practitioners. In an informal and readable style the author and his collaborators discuss briefly: the relief of pain in labor; labor pains and induction of labor;

conduct of labor without vaginal examination; tears; forceps; conduct of labor in contracted pelves; diagnosis and treatment of eclampsia; placenta praevia; rupture of the uterus; instrumental injuries of the uterus in treatment of abortion; sepsis, and, at the end, a list of prescriptions found valuable in obstetric practice. The modified Stroganoff plan of treatment of eclampsia is included. The booklet is a practical and valuable one that could be carried in the pocket and read with profit during hours of waiting on a confinement. The physician is reminded, for instance, of the importance of suggestion for relief of intense pains of labor—the mere presence of the physician and his assurance that all's well often turns a howling, despairing, almost maniacal patient into a tranquil and reasonable woman. Again, in reference to the use of narcotics and anesthetics the author recalls what great joy is expressed by the mother who, fully awake, hears her baby's first cry. To deprive her of this, he says, under ordinary circumstances, is both unphysiologic and unanswerable. The pamphlet, representing a summary of the present practice in the subjects treated, can be heartily recommended to practitioners of obstetrics.

THE CORRECTION OF SPEECH DEFECTS. By Helen M. Peppard (Mrs. Emmet King Moore). Cloth. Price, $1.40. Pp. 180, with 6 illustrations. New York: The Macmillan Company, 1925.

This is a treatise and manual for school teachers who are doing corrective speech work. In scope it is limited to the most common speech disorders: articulative defects chiefly, stammering less completely, with a chapter on nasality of the voice and one on foreign accent. In such books when written by laymen, the physician often realizes the need of a better knowledge of physiology. This is true here. Clearness of insight into the practical side of certain of the problems treated is thus to a degree lacking. The evidently large experience of the author as a teacher is made of valuable use. On the whole, the book is intelligent, sensible and helpful. Especially to be commended is the sanity of the rather brief chapter on stammering.

WHY WE BEHAVE LIKE HUMAN BEINGS. By George A. Dorsey, Ph.D., LL.D. Cloth. Price, $3.50. Pp. 512. New York: Harper & Brothers, 1926.

The fact that this book had twenty-one printings between October, 1925, and June, 1926, is sufficient indication that the author has been able to tell his story in a form comprehensible to any intelligent reader. That story is essentially a recapitulation of our knowledge of the evolutionary development of man, the basis on which he carries on his functions, and the mechanism by which human behavior is established. The scientific accuracy of the story is vouched for by a distinguished list of consultants who have read the various chapters on subjects with which they are especially concerned, and by the fact that the author, through his own scientific training, has chosen for reference textbooks and periodicals of authenticated merit. This ponderous introduction should not, however, alarm the prospective reader. Dr. Dorsey has avoided most of the pitfalls that betray medical writers for the public. He does not hesitate to use medical terms, but he defines them so simply that those who wish to read may easily follow. The book has well been described as the most readable, sound and fascinating contribution of its kind. The physician who does not know the material that it contains is thereby much less a physician with an understanding of humanity.

DIE BEDEUTUNG DER ROTEN KERNE UND DER ÜBRIGEN MITTELHIRNS FÜR MUSKELTONUS, KÖRPERSTELLUNG UND LABYRINTHREFLEXE. Von Dr. G. G. J. Rademaker. Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie. Herausgegeben von O. Foerster und K. Wilmanns. Heft 44. Paper. Price, 27 marks. Pp. 340, with 212 illustrations. Berlin: Julius Springer, 1926.

This monograph appeared first in May, 1924, in the Dutch language. Fortunately, it is here translanted into German by Dr. E. LeBlanc. The volume contains records of investigations, making it a supplement to the work of Magnus on Körperstellung. Its chief aim is to record the differences between the reaction of a thalamus animal and the decerebrate animal. The thalamus animal has a normal distribution of tone; it can be stimulated to walk, run and jump. If overthrown it can right itself, and the position of the head is modified in accordance with the position of the body. It preserves all the "righting reflexes" of Magnus. In the decerebrate animal there is an abnormal hypertonus; the head becomes fixed in a position of extension, and the animal cannot right itself. Rademaker describes experiments in which transections at various levels of the thalamencephalon and of the mesencephalon in cats and rabbits were made to determine the levels of the nervous system in which the central mechanisms of various righting and tonic reflexes reside. From these experiments he is able to conclude that the reflex centers for "righting" lie in the ventral part of the midbrain between a frontal plane at the oral end of the red nucleus and one immediately caudad to it. Further experiments showed that decerebrate rigidity appeared when the red nucleus or Forel's decussation were injured. The author then attempts to correlate his experiments with the observations in clinical cases of disease in the midbrain. Finally, experiments to determine various individual righting reflexes and cephalogyratory reactions and nystagmus are recorded. The monograph is profusely illustrated. Its importance cannot be overestimated. The records of Rademaker's prolonged, painstaking and critical experiments are at once a rebuke to the many native hypothetic conceptions of tone, and a stimulus to further work in the elucidation of this most important problem. The fanciful musings of many clinical neurologists, too convincingly simple, are here confronted by the irreconcilable facts of laborious investigation.

SORRELL AND SON. By Warwick Deeping. Cloth. Price, $2.50. Pp. 400. New York: Alfred A. Knopf, 1926.

More and more, as the public begins to learn about medicine, the writers of fiction seem to realize that the life of the physician offers excellent material for dramatic portrayal. Occasionally the novelists dealing with medicine are accurate in their depiction of life. All too often, however, the novelist tells of things as they seem or as he thinks they ought to be, rather than as they are. A few writers whose contact with medicine was or has been intimate have developed medical characters of striking accuracy; one mentions Flaubert, Sinclair Lewis and Balzac. In many instances, physicians themselves have been the novelists. As might be expected, the characters they portray have a realism beyond that even of the inspired novelist. Checkhov, Holmes, Mitchell, Maugham and Young are a few of the men graduated in medicine whose contributions to the fiction field have achieved international fame. To this imposing group must now be added the name of Warwick Deeping, author of "Sorrell and Son." He was educated at Trinity College, Cambridge, and practiced medicine for a year and a half, but gave it up to live in the country, to do landscape gardening, and to write. During the war he responded to the need for medical officers, took up medicine again, went to Gallipoli and Egypt, and served in France. Now that the war is over, he is again at his hobbies of gardening and writing. His new novel has passed rapidly into numerous editions. It develops one of the most sympathetic and beautiful relationships between a father and a son that has featured any modern novel; it sketches the character development of a boy animated by the highest ideals and motives in medicine but yet assailed by many factors in his environment and heredity. The medical interest, which is to a large extent primary, is subdued to its proper perspective in this excellent study. Such purely medical incidents as an infection of a surgeon's finger, a case of cancer, and the development of a young surgeon to a staff position are handled with excellent insight. This novel is more than welcome as an addition to the light reading of a summer that has been none too rich in interesting books. It is particularly a novel for the physician and his family.

LEHRBUCH DER GONORRHÖE: Nebst einem Anhang—"Die Sterilität des Mannes." Herausgegeben von A. Buschke und E. Langer. Paper. Price, 46.50 marks. Pp. 570, with 112 illustrations. Berlin: Julius Springer, 1926.

This is a complete presentation of all the scientific propositions connected with the invasion of the human body by the gonococcus. It was conceived by the authors as a system of authoritative contributions, each chapter being assigned to an author who showed a special predilection for the subject. An introduction includes the medical history of gonorrhea. Considerable space is devoted to the normal anatomy of the genito-urinary organs of the male and pathologic changes caused by the infection. Then come clinical chapters, the gonorrhea of the male urethra occupying a prominent place. The chapter on treatment gives a rational selection of curative methods, basing intervention on clinical recognition. Gonorrhea in the female is discussed in a special chapter, attention being called to the importance of a gonorrheal complication during gestation. Gonorrhea in children is the subject of another subdivision. Statistics are given concerning the source of infection and the frequency of its occurrence. The diagnosis and treatment as modified by the youth of the patients is ably presented. A genito-urinary surgeon describes surgical intervention indicated by the sequelae of gonorrhea. The statistics of gonorrheal infections and the question of prostitution are taken up. The various systems of general and individual prophylaxis are discussed as to their feasibility and possible results. The influence of gonorrhea on the sexual ability of the male and on propagation is presented in all its phases. The work closes with a discussion of the methods and results of artificial fecundation, medical consent to marriage, and forensic questions. The volume may be recommended as a standard reference work for the study of gonorrhea.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits.

CHILD LIFE INVESTIGATIONS; POVERTY, NUTRITION AND GROWTH. Studies of Child Life in Cities and Rural Districts of Scotland. By D. Noël Paton, M.D., LL.D., F.R.S., Professor of Physiology, University of Glasgow, and Leonard Findlay, M.D., D.Sc., Professor of Pædiatrics, University of Glasgow. Medical Research Council. Special Report Series, No. 101. Paper. Price, 10s net. Pp. 333, with illustrations. London: His Majesty's Stationery Office, 1926.

Proof that maternal efficiency is more important than poverty, underfeeding or overcrowding in relation to child health—but maternal efficiency is closely concerned by all three of these factors.

THE HUMAN CEREBROSPINAL FLUID. An Investigation of the Most Recent Advances, as Reported by The Association for Research in Nervous and Mental Disease. The Proceedings of the Association; New York, December, 1924. Editorial Board, Charles L. Dana, M.D.; Thomas K. Davis, M.D.; Smith Ely Jelliffe, M.D.; Henry Alsop Riley, M.D.; Frederick Tilney, M.D., and Walter Timme, M.D. Association for Research in Nervous and Mental Disease—Volume 4 [1924]. Cloth. Price, $10. Pp. 568, with 77 illustrations and 58 tables. New York: Paul B. Hoeber, Inc., 1926.

A summary of our knowledge as presented before investigators in the field of neurology.

LYSSA BEI MENSCH UND TIER. Von Prof. Dr. R. Kraus, Direktor des staatlichen serotherapeutischen Institutes in Wien; Dr. med. vet. F. Gerlach, Direktor der staatlichen Tierimpfstoffgewinnungsanstalt in Mödling bei Wien, und Dr. F. Schweinburg, an der staatlichen Schutzimpfungsanstalt gegen Wut in Wien. Paper. Price, 30 marks. Pp. 464, with 75 illustrations. Berlin: Urban & Schwarzenberg, 1926.

Complete presentation of our knowledge of rabies and various methods of scientific control.

REPORT OF THE IMPERIAL INSTITUTE OF VETERINARY RESEARCH, MUKTESAR, FOR THE YEAR ENDING 31ST MARCH, 1925. Price, 3s. 3d. Pp. 59. Calcutta: Government of India, 1926.

KLINISCHE SYMPTOMATOLOGIE INNERER KRANKHEITEN. Von Prof. Dr. Norbert Ortner, Vorstand der II. med. Klinik der Universität Wien. Erster Band, zweiter Teil. Körperschmerzen (mit Ausnahme der Bauchschmerzen). Von Prof. Dr. Norbert Ortner. Third edition. Paper. Price, 18 marks. Pp. 426. Berlin: Urban & Schwarzenberg, 1926.

Another part of this systematic consideration of the medical meanings of variously distributed pains.

DIE STAMMGANGLIEN UND DIE EXTRAPYRAMIDAL-MOTORISCHEN SYNDROME. Von F. Lotmar, Privatdozent an der Universität Bern. Heft 48, Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie. Herausgegeben von O. Foerster and K. Wilmanns. Paper. Price, 13,50 marks. Pp. 169. Berlin: Julius Springer, 1926.

Monograph with bibliography of primary interest to neurologists.

DIETS FOR BOYS DURING THE SCHOOL AGE. By H. C. Corry Mann, O.B.E., M.D. Medical Research Council. Special Report Series, No. 105. Paper. Price, 2s. 6d. net. Pp. 81. London: His Majesty's Stationery Office, 1926.

Scientific proof that normal school boys surely do grow on the right amounts of the right foods.

UEBER DEN STOFFWECHSEL DER TUMOREN: Arbeiten aus dem Kaiser Wilhelm-Institut für Biologie, Berlin-Dahlem. Herausgegeben von Otto Warburg. Paper. Price, 16,50 marks. Pp. 263, with 42 illustrations. Berlin: Julius Springer, 1926.

A collection of studies as to the content and chemical changes of tumors.

LA LUTTE CONTRE LA SYPHILIS EN BELGIQUE: Son organisation et ses résultats. Par le Professeur A. Bayet, Président de la Ligue Nationale Belge contre le Péril Vénérien. Paper. Pp. 62, with illustrations. Brussels: Ligue Nationale Belge contre le Péril Vénérien, 1926.

How the social hygiene organizations combat syphilis in Belgium.

LEXIKON DER ERNÄHRUNGSKUNDE. Herausgegeben von Dr. E. Mayerhofer, Professor an der Universität Zagreb, und Dr. C. Pirquet, Professor an der Universität Wien. 5. Lieferung. Paper. Price, 16,50 marks. Pp. 895-1205. Vienna: Julius Springer, 1926.

More numbers of a German dictionary of nutrition.

DIE SPRACHLAUTE: Experimentell-phonetische Untersuchungen nebst einem Anhang über Instrumentalklänge. Von Carl Stumpf, Dr. Phil., Dr. Med., o. Professor an der Universität zu Berlin. Paper. Price, 28,50 marks. Pp. 419, with 16 illustrations. Berlin: Julius Springer, 1926.

A scientific study of voice production.

GOITER AND OTHER DISEASES OF THE THYROID GLAND. By Arnold S. Jackson, M.D. Cloth. Price, $10. Pp. 401, with 151 illustrations. New York: Paul B. Hoeber, Inc., 1926.

A thorough review of the present status of our knowledge handsomely printed and illustrated.

WHY WE BEHAVE LIKE HUMAN BEINGS. By George A. Dorsey, Ph.D., LL.D. Cloth. Price, $3.50. Pp. 512. New York: Harper & Brothers, 1926.

The best popular presentation of human biology as yet available.

OXFORD BIBLIOGRAPHICAL SOCIETY; PROCEEDINGS AND PAPERS. Vol. I, Part 3, 1925. Paper. Pp. 246. Oxford: Oxford Bibliographical Society, 1926.

A discussion of Burton's "Anatomy of Melancholy" by Osler, Bensly and others.

MEDICAL CARE OF INDUSTRIAL WORKERS. Cloth. Price, $2. Pp. 112. New York: National Industrial Conference Board, Inc., 1926.

What industry is doing to make the worker physically efficient.

FURTHER STUDIES OF THE SALMONELLA GROUP. By P. Bruce White, B.Sc. Medical Research Council. Special Report Series, No. 103. Paper. Price, 5s net. Pp. 160, with illustrations. London: His Majesty's Stationery Office, 1926.

THE ROCKEFELLER FOUNDATION—INTERNATIONAL HEALTH BOARD. Twelfth Annual Report, January 1, 1925-December 31, 1925. Paper. Pp. 229, with illustrations. New York: Rockefeller Foundation, 1926.

OUTLINES OF COMPARATIVE ANATOMY OF VERTEBRATES. By J. S. Kingsley. Third edition. Cloth. Price, $4. Pp. 470, with 435 illustrations. Philadelphia: P. Blakiston's Son & Company, 1926.

TUBERCULOSIS SURVEY OF BOSTON, 1925. By Murray P. Horwood, Ph.D. Paper. Pp. 215. Boston: Tuberculosis Association, 1926.

TRANSACTIONS OF THE CREMATION SOCIETY OF ENGLAND. No. XXXVII. Paper. Pp. 77, with illustrations. London, 1926.

Social Medicine and Miscellany

MEDICAL DEFENSE IN NEBRASKA

Only five malpractice suits came before the medical defense committee of the Nebraska State Medical Association in 1925. During the preceding year there were thirteen. The number of suits per thousand members of the association dropped, therefore, from 10.5 in 1924 to 4 in 1925. To expedite action, demands on members of the association on account of alleged malpractice are to be forwarded to the medical defense committee through the councilor of the district in which the demand arises. All councilors thus serve as assistants to the defense committee. In its recent reorganization, the committee elected Dr. Czar C. Johnson of Lincoln as its medical counsel, to serve as its active member in carrying into effect its program of prevention and defense. The preventive program includes the publication of articles in the *Nebraska State Medical Journal*, to be prepared by the committee's medical counsel and by its attorney. The first article, by Dr. Johnson, appeared in the July issue (Johnson, C. C.: The Prevention of Malpractice, *Nebraska M. J.* **11**:281 [July] 1926). Stress is laid on the importance of written records of clinical histories, including records of physical and laboratory examinations and of treatment, and of fees charged. Consultations, it is pointed out, not only prevent mistakes and distribute responsibility, but tend to develop mutual understanding, respect and esteem, and thus contribute toward the prevention of suits. Dr. Johnson points out that the law never requires the impossible nor more than is the custom of the locality in which the physician practices. The difficulty of determining at times just what that custom is leads him to suggest that a reasonably well standardized technic and treatment for each locality be adopted for fractures, obstetrics, use of electrical apparatus, surgical operations, medical therapy of infectious disease, intravenous and new unofficial drugs, and new and unofficial diagnostic reagents.

FOREIGN VIEWS OF AMERICAN MEDICINE

Two prominent Spanish-speaking clinicians, after visiting the United States to study American medical teaching, have recorded their observations. Dr. Pou Orfila,[1] who writes philosophically, finds little to criticize. His scholarly contribution has already been reprinted[2] in Mexico and Peru, where reform in medical education is much discussed at present. Orfila was impressed with what the organized medical profession has been able to accomplish here in a field preempted abroad by official authority. Among American tendencies, he approves personal and individual teaching, better salaries for professors, and closer relations between laboratories and clinics. He pleads for simplification of courses, entrance examinations and a change from the present morphologic and anatomic basis of medical teaching in South America to a more biologic and physiologic conception.

Dr. Rodríguez Fornos[3] is a professor in the district popularized by Blasco Ibañez' novels and Sorolla's paintings. While primarily concerned with education, he comments on everything that comes the way of the traveler—street traffic, hotels, theaters, newspapers, the exchange, school life. His first impression of New York was altogether unfavorable: too much noise and dangerous hurry and exploitation of foreigners, hardly relieved by a sensation of strength and life and youth, beautiful avenues, skyscrapers, and its day-like night lighting. Jazz he considers an Indian atavism. Theaters seem rather scarce, as Chicago has only twenty-four, as compared to ninety-two hospitals and 267 schools. The fellowships offered to poor students as well as the freedom in selecting the teaching staff call for the highest praise. American professors are presented as eager to please, sincere and ready to show things to visitors. The good temper of surgeons is set as a model.

On the other hand, fun is poked at American faith in figures rather than common sense. Our medical methods, according to the Valencia professor, suffer from too much simplification and too many formulas, from lack of perspective and general culture. The practical spirit of Americans leads them to depend too much on the laboratory and rely too little on clinical acumen. American technic is better than the European, but interpretation seems bad. Clinical genius, that result of culture and education, is lacking. American schools aim at producing technicians rather than physicians. In concluding, the Spanish essayist recognizes that American organization has been highly developed and that America succeeds in offering to every citizen a field to put his talents to the best use. "Americans work and let others work. The Spaniard is not willing to do either. Americans are neither fond nor fearful of criticism. In Spain, we enjoy making fun of others. They have the optimism of childhood, while we suffer from the pessimism of old age. Americans think with open eyes. Europeans often think with closed eyes. The former believe only what their senses show. The latter have too much contempt for facts." Finally, Prof. Rodríguez Fornos recommends to his countrymen Lincoln's words, "Each citizen must do his duty." The first word is spelled "Ich."

1. Pou Orfila, J.: Reflexiones sobre la Educación Médica, Informe presentado a la Facultad de Medicina de Montevideo, a raiz de un viaje científico por los Estados Unidos y Europa (1923-1924).
2. Gaceta Médica de México, October, 1925; Anales de la Fac. de Med. de Lima, 1925.
3. Rodríguez Fornos, F.: Impresiones médico-sociales de un viaje de estudio a los Estados Unidos de Norte-América, Valencia, 1926.

THE SILHOUETTE ROENTGENOGRAM IN THE INTERPRETATION OF CLINICAL SIGNS

In a discussion on this subject held at the Post-Graduate Hostel, London, July 12, Mr. A. P. Bertwistle stated that when a sharply cut outline is required, a photograph or drawing comes far behind a silhouette in many respects. The superimposition of the shadow of the part on that of the bone possesses great teaching possibilities. It is a recognized fact that in the process of ordinary printing the fleshy contour of a part, which was quite definite on the negative, disappears. The silhouette roentgenogram is prepared as follows: The plate or film is held to the light or placed in a viewing box, and the outline of the part is scratched on it by means of a mounted needle. When a print is made, this outline appears as a black line. The print is now dried and the background filled in with india ink with a brush with the production of a reversed silhouette. It is dried and squeegeed. Three points are striking: the better "finish," the stereoscopic way the bones "stand out," and their detail, which is accentuated by the optical illusion of the black background. The silhouette roentgenogram demonstrates at once the deformity and its cause. It gives the position in which the limb was screened. Deformities due to the following are recognized:

Congenital Errors.—The cause of the bowing of the arm in congenital absence of the radius and the elevation of the shoulder. (Sprengel's) are readily seen. Certain conditions, such as spina bifida, encephalocele and thyroglossal cysts, are depicted better by this means than any other.

Fracture.—The steep slope of the shoulder in fracture of the clavicle, the "wave" defomity of a greenstick fracture of the forearm, the dinner fork deformity and backward displacement in Colles' fracture, the gap between the two fragments of a patella broken by muscular action, and the torsion of a foot in Pott's fracture are all strikingly demonstrated and explained. The nearness of the fragment to the skin is apparent; this is of great importance in the investigation of painful amputation stumps.

Dislocation.—The disappearance of the deltoid fulness responsible for Hamilton's ruler test and the increased axillary girth (Calloway's test) observed in a dislocation of the shoulder are readily explained; also the hard prominence palpable anteriorly and the groove posteriorly in a dislocated elbow.

Disease of Bone.—The typical bulbous finger of a periosteal whitlow, and the spindle shaped finger of tuberculous dactylitis

are well seen. If the swelling lies immediately over diseased bone, it is due to this disease; if over normal bone, it is not. The presence of irregularities due to sinuses is characteristic of pyogenic infection. The presence of wasting is well seen if both sides are available and is of the greatest importance since malignant and rachitic disease is not so accompanied, while tuberculous disease is. One of the causes of genu valgum is seen to be enlarged inner femoral and tibial condyles. The osseous lesion in the various talipes is well seen.

Another use of this method is to show the depth of foreign bodies and the direction of sinuses which assume a definite position instead of appearing in space.

Medicolegal

Hotel Company Not Liable for Negligence of Physician

(Barry v. Merriman et al. (N. Y.), 214 N. Y. Supp. 66)

The Supreme Court of New York, appellate division, second department, in reversing an order which denied the motion of a hotels corporation that was a defendant in this case and had moved for the dismissal as against it of the complaint on the ground that the complaint did not state facts sufficient to constitute a cause of action against the corporation, says: "Motion granted, and complaint dismissed, with costs, as to said defendant." The complaint alleged that while the plaintiff was a guest of the corporation's hotel she met with an accident, on the street, in which she injured her right knee. She informed the proper agents or employees of the corporation of her injuries, and they suggested to her, she being advised and directed by them in connection with their employment, that the defendant Merriam, an osteopathic physician who had an office for the practice of his profession in the hotel, was fit and proper and able to treat her for her injuries in his capacity as a physician, and she alleged that they directed him to treat her at the hotel. She alleged further that he so treated her injured knee as to cause her additional injuries, pain and suffering, and that he aggravated her existing injuries; and alleged that the treatment and services rendered by him were careless, negligent and improper.

It was to be noticed that the complaint contained no averment that the physician was employed by the hotels corporation; the allegation was that he was a physician, and that he had an office for the practice of his profession in the hotel. It was not alleged that he was a guest, or that he resided at the hotel. He might have had other offices in other places in the city. Nor was there any allegation that he was not a competent physician, or that the hotels corporation or its employees were negligent in recommending him to the plaintiff or in their alleged direction to him to treat her. It was difficult to see how the "direction" could be more than a request to the physician to help the injured woman, because there were no facts alleged which gave the employees of the hotel authority to direct him to do anything. The allegation was that the physician was negligent in his treatment of the plaintiff. Nor was there any allegation that the defendant hotels corporation shared or had any interest in the physician's charge for his services to the plaintiff. The complaint alleged that the hotels corporation and its agents and employees represented him as a capable, proficient and able physician; but there was no allegation that he was not capable, proficient and able, or that the corporation was negligent in permitting him to have an office in the hotel building. True, the plaintiff alleged that he did not treat her properly, and that he was negligent, and on a motion such as this the court must take her allegations as true; but the best of men may make a mistake. The court does not think that any inference could be drawn, because of this allegation in the complaint, that the physician was not capable, proficient and able.

When we find stores and offices in hotel buildings, which, while they may be a convenience to the guest at the hotel, are entirely apart from any duty which the hotel owes to its patrons, it seems to this court that there is no relation of respondeat superior (let the master or superior answer) between the hotel company and these outside enterprises. We find physicians and lawyers conducting offices in hotels; brokers, florists, drug stores, in the hotel buildings, saving the steps of the guests, if they desire to patronize them. Most of the larger hotels have in their establishments telegraph offices for the convenience of their patrons. But it seems to this court that there is no authority in law or reason for holding the hotel company responsible for the alleged negligence of these outside conveniences, whether they be brokers, lawyers, physicians, telegraph companies, milliners or haberdasheries. The relation of master and servant does not exist between the hotel company and these guests or tenants. Because a hotel clerk or porter or bell boy may recommend them to a guest at the hotel, it does not follow that the hotel is responsible for the alleged negligence of the physician, the lawyer, the drug store clerk, or the salesman in the boot and shoe shop. When the plaintiff, injured by her fall on the street, returned to the hotel, asking for a physician, what was more natural, humane and proper than the information given to her that the defendant physician had an office in the hotel, and the suggestion and advice to her, as alleged in the complaint, that he was fit and proper and able to treat her, and the request or alleged direction to him to treat her? Was the hotel to refuse to assist her, and order her away to a hospital in an ambulance, with the alternative risk of responsibility for her medical treatment? Such a contention seems to be very unreasonable.

Improper Bases for Testimony

(Madison Coal Corporation v. Industrial Commission et al. (Ill.), 150 N. E. R. 724)

The Supreme Court of Illinois says that, in this proceeding under the workmen's compensation act, certain roentgenograms were used as the basis of the testimony of some of the witnesses who testified with respect to the extent of the disability of the claimant for compensation, but a proper foundation was not laid for the use of the roentgenograms, and a motion to strike out the testimony based thereon should have been allowed. It was also error to permit the medical witnesses to detail complaints of the patient and his manifestations of pain which were within his control, and then express an opinion as to the patient's condition based thereon.

Postoperative Hernia of Employee Compensable

(O'Gara Coal Co. v. Industrial Commission et al. (Ill.), 150 N. E. R. 640)

The Supreme Court of Illinois says that an employee of the coal company, who had been operated on, March 14, for the removal of gallstones, went to work, June 26, and, while lifting on a car that had got off the track, strained his side at the place of the incision made at the time of the operation, resulting in a postoperative hernia. The company contended that the disability did not arise out of the employment, and that the origin of the accident was the employee's physical condition and not the lifting of a heavy object. But it is not necessary that a laborer should be in perfect health and physical condition prior to an accident to entitle him to compensation for the accident he receives in the course of and arising out of his employment. Although he may have had an injury and a preexisting physical weakness which reduces his ability to work below that of a normal, uninjured man, and be thereby more susceptible to injury, yet, if he is able to do some work and is employed, and in the course of his employment receives an injury arising out of the employment, which renders him totally and permanently disabled from performing physical labor, he is entitled to an award for such total permanent disability, notwithstanding the former injury and weakness. This man was employed, received an injury in the course of his employment and arising out of it, and was entitled to compensation notwithstanding the fact that a former operation was a contributing cause. However, while the evidence tended to show that it was reasonably

certain that he would be partially permanently incapacitated by reason of the hernia, unless it was reduced by an operation, there was in the record no basis for an award for permanent total disability and a pension for life, and a judgment affirming an award of that character is reversed.

Health Officer Appointing Deputy and Authorizing Work

(Pue v. Lewis and Clark County (Mont.), 243 Pac. R. 573)

The Supreme Court of Montana says that the plaintiff brought this action to recover $523.25 as the reasonable value of services rendered in cleaning vaults and doing sanitary work at the instance of the county health officer. There was evidence that the health officer had assumed to appoint a deputy health officer of the county; that the deputy had inspected certain premises and determined that they should be cleaned; and that, after the occupants had neglected to clean them within the time specified in notices served on such occupants, the plaintiff and the deputy consulted with the health officer, who told the plaintiff to go ahead and clean the premises. But the board of county commissioners refused to pay the plaintiff's bills for the work, which were O. K.'d. by the deputy health officer, for the reason that they had been contracted without the knowledge or consent of the county board of health or of the board of county commissioners; and the court affirms a judgment of nonsuit. The court has not discovered in the statute any authority for the appointment of a deputy health officer, and there is no provision authorizing the county health officer to take steps for the abatement of nuisances or the removal of sources of filth without first having received authorization from the county board of health. It is apparent that, since the county health officer did not seek and was not granted authority from the county board of health to enter into the contract or incur the expense made the basis of the plaintiff's cause of action, he had no authority to make the contract or incur such expense, and consequently the plaintiff wholly failed to prove the contract set out in his complaint.

Physician Must Certify that Person Has Become Sane

(State v. Garrison (Wash.), 243 Pac. R. 373)

The Supreme Court of Washington, in affirming a judgment dismissing the application of an inmate of the criminal insane ward of the state penitentiary for a trial on the question of her present sanity, says that her petition for her discharge was based on chapter 30 of the laws of 1907. It will be observed that, when a person committed under this statute claims to have "become sane," he shall apply to the physician in charge for an examination as to his mental condition; that the physician shall certify that such person has "become sane since his commitment and is a safe person to be at large"; that thereupon the warden shall permit him to present a petition to the court that committed him, setting up that since his commitment he has "become sane"; that the issue to be tried by a jury shall be whether the person petitioning for discharge has since his commitment "become a safe person to be at large," and that the jury shall find whether he has "become sane" since his commitment. It is the purpose of this statute to permit one to be discharged who has been committed to the criminal insane ward of the state penitentiary only when there has been a change in his mental condition. In other words, as recited over and over again in the statute, that he has "become sane" since his commitment.

The first requisite in the procedure is that the physician in charge of the insane ward shall issue such a certificate. In the present case the physician did not certify that the petitioner had become sane since her commitment, but only that she was sane at the time of the making of the certificate. Whether she had become sane since her commitment was a fact which the law required to be stated, in the absence of which the application was defective. Had there been a change in the petitioner's condition and had she become sane since her commitment in the opinion of the physician, he would certainly have so certified, because it is presumed that he will perform the duties of his office fairly and properly.

It is undoubtedly one of the purposes of the law under which this proceeding was brought, if not its chief purpose, to guard against sham and frivolous pleas of insanity by a defendant charged with a serious crime. It was suggested that it would be impracticable to get such a certificate as that required if the physician in charge at the time of the commitment was not the same individual as the one in charge at the time the application was made. But that is a question which it is not necessary here to consider, because in the present case the physician in charge at the time of the commitment was the one in charge at the time the application was made.

Physician Not Bound by Workmen's Compensation Act

(Dias v. New Jersey Mfrs.' Casualty Ins. Co. (N. J.), 132 Atl. R. 101)

The Supreme Court of New Jersey says that this was an appeal from a judgment for $214 rendered for the plaintiff. There was no contest as to the amount of the judgment. The action was to recover for the services rendered by a licensed physician—an eye specialist. The testimony showed that the defendant casualty insurance company requested the plaintiff to treat an employee of a firm insured by the company, the company sending a note with him stating that he required treatment and asking the plaintiff to treat him. The only point involved in the case was whether the plaintiff was bound by the workmen's compensation act (P. L. 1922, p. 500 [section 2 * * 236, subd. 14, Comp. St. Supp. 1911-1924]), and the case of *Moore* v. *Derees*, 97 N. J. Law, 378, 117 Atl. 480. But in that case it was said:

> The parties are bound by all the terms of the statute, and only parties to the statutory contract are bound by its terms or entitled to its benefits. An examination of the statutes demonstrates that only the employer and the employee are parties to the statutory contract. The act of 1911 implies a contract only as between employer and employee, and makes provisions quite inapplicable to third parties.

That case did not aid this defendant; it was an authority for affirming the judgment, which is affirmed, with costs.

Society Proceedings

COMING MEETINGS

American Association for Thoracic Surgery, Montreal, Canada, Sept. 30-Oct. 2. Dr. Ethan Flagg Butler, Robert Packer Hospital, Sayre, Pa., Secretary.

American Association of Railway Surgeons, Chicago, Nov. 3-5. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American Climatological and Clinical Association, Philadelphia, Sept. 27-28. Dr. A. K. Stone, Auburn Street, Framingham Center, Massachusetts, Secretary.

American College of Physical Therapy, Chicago, Oct. 18-23. Dr. R. W. Fouts, City National Bank Building, Omaha, Secretary.

American College of Surgeons, Montreal, Canada, Oct. 25-29. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Public Health Association, Buffalo, Oct. 11-14. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Association of American Medical Colleges, Cleveland, Ohio, Oct. 25-27. Dr. F. C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, Philadelphia, Oct. 14-16. Col. J. R. Kean, U. S. A., Ret., Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, St. Louis, Oct. 22-23. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Delaware State Medical Society, Dover, Oct. 12-13. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Inter-State Postgraduate Medical Association of North America, Cleveland, Oct. 18-22. Dr. W. B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

National Tuberculosis Association, Washington, D. C., Oct. 4-7. Dr. George M. Kober, 1819 Eye Street, N. W., Washington, D. C., Sec'y.

Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 11-14. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Southern Medical Association, Atlanta Ga., Nov. 15-18. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Minnesota Medical Association, Mankato, October 18. Dr. H. T. McGuigan, Redwing, Secretary.

Southwest, Medical Association of the, Kansas City, Mo., Oct. 11-14. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Vermont State Medical Society, Burlington, Oct. 14-15. Dr. W. G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Norfolk, Oct. 12-15. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Western Surgical Association, Duluth, Minn., Oct. 14-16. Dr. H. P. Ritchie, Lowry Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

37: 417-532 (July 15) 1926

Histologic Changes in Vaginal Mucosa of Sow in Relation to Estrus Cycle. K. M. Wilson, Rochester, N. Y.—p. 417.

Rabbit Placenta and Problem of Placental Transmission. H. W. Mossman, Madison, Wis.—p. 433.

Mechanical Processes Concerned in Formation of Differing Types of Aortic Arches of Chick and Pig and in Divergent Early Development of Their Pulmonary Arches. E. D. Congdon and H. W. Wang, Peking.—p. 499.

American Journal of Diseases of Children, Chicago

32: 1-162 (July) 1926

*Chemical Changes in Body the Result of Vomiting. A. F. Hartmann and F. S. Smyth, St. Louis.—p. 1.

*Metabolism of Salts in Nephritis. I. Calcium and Phosphorus. G. L. Boyd, A. M. Courtney and I. F. MacLachlan, Toronto.—p. 29.

*Paranasal Sinusitis in Infants and Young Children. P. C. Jeans, Iowa City.—p. 40.

*Significance of Leukocyte Count as Index of Rheumatic Infection in Children. M. G. Wilson and M. Kopel, New York.—p. 46.

*Xanthochromia of Spinal Fluid in New-Born. C. O. Kohlbry, Duluth, Minn.—p. 58.

*Metabolism of Undernourished Children. C. C. Wang, M. Frank, B. B. Hays and R. Kern, Chicago.—p. 63.

*Rôle of Dysentery Bacillus in Arthritis Deformans (Type I). S. H. Clifford, Boston.—p. 72.

*Cor Biatria Triloculare with Transposition of Arteries. R. P. Ball, Louisville.—p. 84.

*Craniopharyngeal Pouch Cyst Arising from Pituitary Body. R. D. Moffett, New York.—p. 89.

*Auricular Flutter with Congenital Heart Disease. S. Amberg and F. A. Willius, Rochester, Minn.—p. 99.

Review of Literature on Syphilis. R. H. McBride, Iowa City.—p. 105.

Changes in Blood the Result of Vomiting.—The changes in the chemical composition of the blood seen in cases of pyloric and intestinal obstruction in infants and children, according to Hartmann and Smyth, who investigated in this field in twenty clinical cases, can be explained entirely by loss from the body of gastric and intestinal secretions. They feel that Haden and Orr are not justified in their assumption that chloride migrates from the blood into tissues to detoxify a hypothetic toxic substance, and can see no reason why simple hypertrophic pyloric stenosis should give rise to toxin formation and absorption as in the case of the strangulated intestinal obstruction. As a result of vomiting, chloride is lost. As chloride diminishes in the blood, bicarbonate is retained and compensates at least in part for the deficiency in electrolyte, so that the total salt concentration still remains nearly normal. When the deficiency of sodium chloride in the blood disappears as a result of the administration of sodium chloride, the excess of nonprotein nitrogen and sodium bicarbonate in the blood is rapidly excreted by way of the urine. Excretion of sodium bicarbonate, sodium chloride and nonprotein nitrogen depends on the total concentration of crystalloid (electrolyte and nonelectrolyte) in the blood. When this concentration is less than normal, sodium bicarbonate is retained in the blood, and the urine remains acid in reaction despite the presence of a greatly increased plasma carbon dioxide content.

Metabolism of Salts in Nephritis.—The cases of nephritis studied by Boyd et al. occurred among hospitalized children. Blood phosphates were increased in 66 per cent of the nephritis serums examined. Blood calcium was decreased in 71 per cent of the series. High blood phosphates were usually found in patients with acidosis, but were also noted in some patients with no acidotic symptoms. Symptoms or signs of nephritis other than acidosis do not appear to bear any direct relationship to the level of the blood calcium or phosphate. Serum phosphates are apparently of some prognostic value in nephritis, when transitory rises due to acidosis are excluded. A persistent moderate increase indicates the presence of a progressive renal lesion. High blood phosphates have a prognostic value comparable to high blood creatinine except when acidosis is present. Nephritic children have a positive calcium balance unless their intake falls to a low level, slightly higher than the minimal on which normal children have a positive balance. The nephritic kidney is functionally incapable of excreting calcium in a normal manner. The calcium balance is apparently independent of the blood calcium content. The presence or absence of edema plays an important part in the phosphate balance. The daily excretion of phosphates in nephritic patients compares favorably with that of the normal. Variations in the calcium intake did not influence the proportion of phosphate excreted by urine or bowel.

Paranasal Sinusitis as Focal Infection in Children.—In Jeans' opinion, sinus infection in children is of considerable importance as a focal infection. Among the conditions that he regards as remote effects of sinusitis are cardiopathies, rheumatic fever, chorea, nephritis, pyelitis, certain cases of cyclic vomiting, deforming periarthritis, anemia, anorexia, malnutrition, chronic digestive disturbance, certain cases of neuritis, and possibly erythredema (acrodynia). Jeans says that an important manifestation that has been touched on only lightly in the literature is an acute illness in infancy, with symptoms referable chiefly to the gastro-intestinal tract and of such severity that death results if the condition is not relieved. He has seen several such cases that proved to be due to an acute mastoiditis, though the local signs by which mastoiditis might be diagnosed were insignificant or almost totally lacking. In those instances in which the mastoids were operated on, and in which recovery took place, convalescence was rapid. Cases of chorea, nephritis, headache and asthma due to sinus disease are cited.

Leukocyte Count in Rheumatic Infections in Children.—A total of 348 leukocyte counts in eighty-eight cases were made by Wilson and Kopel. The average leukocyte count for children with a history of previous rheumatic infection (potential heart disease) was 7,000 cells; in organic heart disease, 7,700 cells; in active rheumatic infection (carditis, arthritis, chorea and recurrent growing and joint pains), more than 9,000 cells. The correlation between vital capacity determinations and leukocyte counts in children with rheumatic heart disease confirms the modern conception of cardiac failure in children being primarily due to infection rather than to mechanical factors.

Xanthochromia of Spinal Fluid in New-Born.—A series of five new-born infants with xanthochromia of the spinal fluid is reviewed by Kohlbry. The color of the fluid varied from a pale yellow to a bright canary. All these fluids showed red blood cells, either all or in part crenated, when examined a few minutes after withdrawal. No difficulty was encountered with any of the spinal punctures. They were what might be termed "clean punctures," in that there was no evidence of macroscopic blood at the time. Some signs of intracranial disturbance were noticed before punctures were done in all these cases. These signs, in the order of their frequency, were uncontrollable vomiting, listlessness, mild cyanosis, nystagmus and a very high temperature. There is evidence, based on the characteristics of these fluids and the clinical course of these infants, that yellow fluids such as are here described are related to previous intracranial blood vessel derangement, producing either transudation of blood plasma, frank hemorrhage, or both. The etiologic agent may be intracranial congestion occurring during labor.

Metabolism of Undernourished Children.—This paper by Wang et al. is the first of a series of studies on undernourished children. The data presented show the possibility of profound influence of racial and environmental factors, as well as bad food habits on malnutrition. The statement so often made that certain undernourished children cannot gain weight even with proper feeding is said to be wrong.

Rôle of Dysentery Bacillus in Arthritis Deformans.—The possibility that some cases of arthritis deformans (type I) may be protean manifestations of an unrecognized infection with a bacillus of dysentery is suggested by Clifford. Four of the seven cases of idiopathic arthritis reported were found to show evidence either of an active or of a past infection with a dysentery bacillus. Two of the four patients had had definite diarrhea, one of these being of the blood-stained, mucoid type. Two gave no history of ever having had diarrhea. A dysentery bacillus of the Flexner type was isolated from the stools of one. All four possessed dysentery agglutinins in the blood serum and one in the joint fluid, to a point well above that considered diagnostic for the "standard agglutinable cultures" of Dreyer that were used. Pericarditis, given as one of the complications of dysentery, was present on admission in one of these patients.

Case of Cor Biatria Triloculare.—Ball's patient, aged 2½ years, showed no marked symptoms until two weeks before death. The colored skin of the patient, a negro child, made it difficult to recognize cyanosis. No infectious lesion was demonstrable as the cause of death. A clinical diagnosis of pericarditis with effusion and the possibility of nephritis, was made. The patient was in the hospital for five days. The afternoon of the fifth day, following very difficult breathing, the patient ceased to breathe. The necropsy disclosed a transposition of the aorta and pulmonary artery; absence of interventricular septum (cor biatria triloculare); anomalous insertion of chordae tendineae of the right leaflet of the mitral valve; anomalous origin of the coronary arteries; cardiac hypertrophy; generalized anasarca; ascites; hydrothorax, bilateral; passive congestion of the spleen, liver and kidneys; congenital adhesion of the gallbladder and transverse colon; extravasation of blood in the wall of the pericardial sac, and recent puncture wounds of the heart.

Cyst of Pituitary.—Moffett's patient, aged 3½ years, presented polydipsia and polyuria, with a definite roentgenogram revealing a craniopharyngeal pouch cyst. The cyst was removed surgically. The symptoms of diabetes insipidus have not returned since the operation. Recovery seems assured, except for optic atrophy in the left eye and a general disability.

Auricular Flutter with Congenital Heart Disease.—Amberg and Willius observed a child with congenital heart disease with marked cardiac insufficiency from the age of 2½ to 5 years, who had auricular flutter a month preceding death. In spite of two rather severe infections, no evidence of preexisting or recent inflammatory disease of the heart could be found. The foramen ovale was patent and there was marked dilatation of the right auricle with a very unusual degree of hypertrophy. The tricuspid ring was widely dilated and the musculature of the right ventricle was greatly hypertrophied. There was marked dilatation of the pulmonary artery. An abscess, probably embolic in origin, was found in the upper lobe of the right lung with areas of bronchopneumonia and collapse of the lung. A marked degree of hepatic cirrhosis was present. No other significant lesions were found.

American Journal of Pathology, Boston

2: 275-340 (July) 1926

*Caseation in Tuberculosis. E. M. Medlar, Madison, Wis.—p. 275.
*Giant Cells: Relation to Caseation in Tuberculosis. E. M. Medlar, Madison.—p. 291.
Autotransplantation and Homoiotransplantation of Thyroid in Rat. Transplantation of Parathyroid, Uterus and Ovaries. L. Loeb, St. Louis.—p. 301.
Autotransplantation and Homoiotransplantation of Cartilage and Bone in Rat. L. Loeb, St. Louis.—p. 315.
*Adenomas of Islands of Langerhans. S. Warren, Boston.—p. 335.

Caseation in Tuberculosis.—A large series of cases of both natural and experimental tuberculous infection have been examined by Medlar. At least 200,000 serial sections have been examined. Tissues from human cases obtained at necropsy and at surgical operations, from guinea-pigs inoculated with bovine and human tubercle bacilli and from fowl naturally infected with the avian strain of the tubercle bacillus have been examined. From these studies Medlar concludes that caseation, cavitation and ulceration in tuberculosis appear to be due to the active participation of the polymorphonuclear leukocyte in the inflammatory reaction to the tubercle bacillus. The process of caseation appears to be the same in naturally acquired tuberculous infection in fowl and man and in laboratory animals experimentally infected. The presence of the polymorphonuclear leukocyte in tuberculous inflammation is not an indication of secondary infection with pyogenic bacteria. It is an indication of the production by the growth or death of the tubercle bacillus, or by the action of the tubercle bacillus on the tissue in the tubercle, of a substance which strongly attracts the polymorphonuclear leukocyte.

Nature of Giant Cells.—Medlar says that giant cell formation in avian, bovine and human tuberculosis appears to be brought about in a similar manner. Giant cells are an indication of a reparative process in small areas of caseation or of simple necrosis of tissue—a reaction to a foreign body. Giant cells in tuberculosis are not true giant cells. They are bits of dead inflammatory tissue that have been more or less completely surrounded and invaded by mononuclear leukocytes, less commonly by lymphocytes and very rarely by a polymorphonuclear leukocyte.

Adenomas of Islands of Langerhans.—Four cases of adenomas of the islands of Langerhans are presented by Warren, bringing the number of reported cases up to twenty. These tumors are characterized by resemblance to the islands in arrangement of their cells and in appearance of the individual cell, by absence of mitotic figures, by the presence of a definite capsule and by compression of the adjacent tissue.

American Review of Tuberculosis, Baltimore

6: 241-304 (July) 1926

Developments in Anthelmintic Medication. M. C. Hall, Washington, D. C.—p. 247.
*Atypical Cases of Yellow Fever in Salvador. H. Hanson, New York.—p. 261.
*Histoplasmosis of Darling in Minnesota. W. A. Riley and C. J. Watson, Minneapolis.—p. 271.
Emergence of Anopheles Mosquitoes. G. H. Bradley.—p. 283.
Dientameba Fragilis. R. Kudo, Urbana, Ill.—p. 299.

Atypical Yellow Fever.—Hanson reports four atypical cases of yellow fever, three of which were modified by vaccine, and the fourth arrested in its incipiency by the administration of yellow fever serum.

Histoplasmosis in Minnesota.—Histoplasmosis of man has been known hitherto only from the three cases reported by Darling from Panama. A fourth case is reported by Riley and Watson—that of a woman who had not been out of the state of Minnesota in forty-two years. The case was clinically identical with those reported by Darling: greatly enlarged spleen, pseudogranuloma of the lungs, emaciation and anemia. In the phagocytic cells of the lung, liver, spleen and lymph nodes were enormous numbers of the organism described by Darling under the name *Histoplasma capsulatum*.

American Review of Tuberculosis, Baltimore

14: 1-105 (July) 1926

Tuberculosis of Live Stock. U. G. Houck, Washington, D. C.—p. 8.
Veterinary Tuberculin Manufacture. E. C. Schroeder, Washington, D. C.—p. 10.
Standardization of Tuberculin. E. R. Long, Chicago.—p. 17.
Relation of Serologic Reactions and Tuberculin Activity in Derivatives of Tubercle Bacilli. M. Pinner, Detroit.—p. 23.
Principles of Bacteriologic Chemical Analysis: Application to Tubercle Bacillus in Large Scale Production of Tuberculin. T. B. Johnson, New Haven, Conn.—p. 30.
*Interpretation of Annular Shadows Appearing in Radiograms of Lungs. E. H. Bruns and J. D. Barnwell, Denver.—p. 58.
*What Can Be Accomplished by Surgery in Advanced Pulmonary Tuberculosis? W. H. Thearle, Denver.—p. 69.
*Deflation of Pleural Cavity in Treatment of Spontaneous Pneumothorax. W. H. Watterson, Maywood, Ill.—p. 80.
*Value of Iodine in Intensive Doses in Treatment of Tuberculosis. E. S. Mariette and J. W. Burke, Oak Terrace, Minn.—p. 89.
Technic of Red Cell Sedimentation Reaction. A. Westergren, Stockholm.—p. 94.
*Comparison of Schulte-Tigges and Ziehl-Neelsen Methods for Staining Acid-Fast Bacteria. J. S. Simmons, Denver, and E. J. Steves, Washington, D. C.—p. 102.

Nature of Annular Shadows in Lungs.—Postmortem studies made at the Fitzsimons General Hospital are overwhelmingly

in favor of the cavity explanation of annular shadows. Therefore, Bruns and Barnwell are of the opinion that, if an annular shadow is present in the roentgenogram of a tuberculous lung, it should be considered as being due to a cavity until proved otherwise.

Effect of Extrapleural Thoracoplasty.—Of eighty-five extrapleural thoracoplasties done on tuberculous patients, Thearle says that 30 per cent of all cases were arrested and 38 per cent were improved. The mortality for the series was 15 per cent: early cases, 4 per cent; far-advanced and spontaneous pyopneumothorax, 21 per cent, and 9 per cent due to operation.

Relief of Spontaneous Pneumothorax by Deflation.—Watterson says that relief of spontaneous pneumothorax symptoms by deflation of the pleural cavity is the treatment that should be instituted as soon as symptoms call for it. Deflation should be done slowly, and sufficient air should be removed to relieve the patient, but no more, especially in cases in which therapeutic collapse has been instituted. The roentgen ray should be used, when possible, to "check up" on the conditions both before and after deflation. Complete deflation is not necessary or advisable. The remaining air will absorb quickly or, in therapeutic pneumothorax, may replace a treatment. Two of eight patients treated by deflation are now alive and quite well. One other lived for more than a year after deflation was performed; all but one of the eight treated were relieved of the distress of the emergency.

Value of Iodine in Treatment of Tuberculosis.—Mariette and Burke used tincture of iodine therapeutically on fourteen patients for varying periods of time, lasting from two weeks to eight months. In several cases, doses above 15 mg. were not tolerated well, producing symptoms of iodine poisoning. A few even showed suppression of urination, restlessness and giddiness. Others took 30, 40 or 60 minims, three times daily, with no apparent discomfort. Clinically, no beneficial results were observed. As iodine circulates in the blood only as an iodide and, as such, is rapidly eliminated and, as such, cannot be converted in the body into free iodine, therefore it is impossible to saturate the body with iodine and thereby inhibit bacterial growth. Therefore, the tincture of iodine used in intensive doses is of no value in the treatment of tuberculosis in any form and may be of definite harm because iodine circulates as an iodide.

Staining Tubercle Bacilli.—It is concluded by Simmons and Steves that for the differential staining of tubercle bacilli the Schulte-Tigges and Ziehl-Neelsen methods are equally valuable.

Annals of Clinical Medicine, Baltimore

4: 987-1088 (June) 1926

Suspension Stability of Human Blood in Roentgenotherapy. E. A. Pohle, Ann Arbor, Mich.—p. 987.
Fundus Changes in Arteriosclerosis: Significance of Choked Disk. W. R. Parker, Ann Arbor.—p. 1002.
*Influence of Anxiety States on Thyroid. L. H. Newburgh and C. D. Camp, Ann Arbor.—p. 1006.
Glycosuria in Thyroid Disease. P. L. Marsh, Ann Arbor.—p. 1012.
Auricular Fibrillation as Complication of Toxic Goiter. P. S. Barker, Ann Arbor.—p. 1016.
Neurologic Aspects of Syphilis. C. D. Camp, Ann Arbor.—p. 1019.
Wassermann-Fast Patient. U. J. Wile, Ann Arbor.—p. 1026.
*Calcification of Pericardium. J. B. Youmans, Ann Arbor.—p. 1032.
*Bright's Disease: Etiology. L. H. Newburgh, Ann Arbor.—p. 1045.
Clinical Varieties of Pernicious Anemia. L. D. Stern, Ann Arbor.—p. 1050.
Focal Infections in Medical Diseases. R. B. Canfield, Ann Arbor.—p. 1058.

Influence of Anxiety States on Thyroid.—Newburgh and Camp are of the opinion that there is a considerable number of cases of so-called diabetes in which careful psychanalysis will show that an emotional state was the original cause of the disorder.

Calcification of Pericardium.—Two cases of calcification of the pericardium diagnosed during life are reported by Youmans. In both cases the disease was tuberculous in origin. Operation (pericardotomy) was performed in one case, with apparent benefit.

Etiology of Nephritis.—Newburgh sees little hope of finding the cause of this disease in the field of focal infection. He suggests that a profitable return might be obtained from a comprehensive bacteriologic study of the blood in these cases and much good might come from clinical investigation such as would be undertaken if every effort were being made to determine the nature of a chronic infection of unknown etiology.

Annals of Surgery, Philadelphia

84: 1-144 (July) 1926

*Treatment of Cutaneous Burns. F. W. Bancroft and C. S. Rogers, New York.—p. 1.
*Burns Treated by Tannic Acid. C. S. Beck and J. H. Powers, Cleveland.—p. 19.
Calcium and Phosphorus Metabolism in Fracture of Bones. I. S. Ravdin and L. Jonas, Philadelphia.—p. 37.
*Spinal Anesthesia. M. F. Campbell, New York.—p. 42.
Control and Treatment of Toxic Goiter. C. H. Frazier and W. B. Mosser, Philadelphia.—p. 51.
*Hypernephromas. A. E. Bothe, Philadelphia.—p. 57.
*Chronic Ulcer of Stomach: Experimental Production and Effect on Gastric Secretion and Motility. J. A. Wolfer, Chicago.—p. 89.
Cholecystduodenostomy. G. P. Muller, Philadelphia.—p. 95.
*Acute Primary Intussusception in Adult. J. W. Hinton, New York.—p. 100.
Surgical Treatment of Acute Appendicitis. E. D. Truesdell, New York.—p. 104.
Dislocation of Carpal Semilunar Bone. C. E. Parr, New York.—p. 112.

Tannic Acid Treatment of Burns.—In the local treatment of cutaneous burns, Bancroft and Rogers recommend the use of a 2.5 to 5 per cent aqueous solution of tannic acid as a wet dressing for twenty-four hours, as first advocated by Davidson. When the burned area becomes a mahogany brown, the dressing is removed and the patient is treated with heated dry air. Usually a tent is erected over the bed and electric lights are inserted. The patient is kept as surgically clean as possible. Patients treated by tannic acid have a firm mahogany membrane in the burned area—healthy skin is apparently unaffected by the treatment. The tanned area has a leathery consistency. Less pain is associated with this method of treatment than with any other procedure. The systematic treatment of fluid depletion is also of great value.

Id.—Beck and Powers also recommend this treatment and urge that it be popularized. The solution can be made by the laity by mixing four teaspoonfuls of the dry powder in a glass of water. This will make approximately a 2.5 per cent solution. Tannic acid is easily procured and can be kept indefinitely as a powder. It should form an important adjunct to the equipment of first-aid stations of steel mills, mines, factories, etc., so that immediate application, either by means of compresses or the spray, could be carried out.

Spinal Anesthesia.—Campbell prefers spinal anesthesia to general anesthesia. It is not an anesthetic for all patients, those to receive it being selected particularly in respect to their blood pressure. Hypotensive patients, especially if the systolic pressure is below 100 mm. of mercury, are poor risks. From the standpoint of the surgeon, it is an ideal anesthetic for operative procedures below the diaphragm. The general postoperative mortality in this series of cases was about 4 per cent less in those cases in which spinal anesthesia was given, that of general anesthesia being slightly more than 12 per cent.

Hypernephroma.—Bothe states that, from embryologic, chemical and pathologic observations, the hypernephromas are quite in accord with the views originally presented by Grawitz.

Experimental Stomach Ulcer.—A chronic ulcer of the stomach that grossly resembles "peptic" ulcer has been produced by Wolfer by a proper dose of roentgen rays. The hope is expressed that physicians will look for cases of gastric ulcer in which studies of gastric secretion and motility have been made, for some reason, prior to the development of the ulcer.

Acute Primary Intussusception in Adult.—A case of acute intussusception in a man, aged 32, is reported by Hinton. Early operation was performed, and the patient made an uneventful recovery. Careful examination of the abdominal contents failed to reveal any other abnormality.

Archives of Ophthalmology, New Rochelle, N. Y.

55: 319-430 (July) 1926

Some Suggested Lines of Clinical Research. B. Graves, London.—p. 319.
Radium Therapy in Diseases of Eye and Adnexa. G. A. Robinson, New York.—p. 328.
Detection of Malingerers. E. Torok, New York.—p. 338.
Intranasal Lacrimal Sac Operation. J. M. West, Tamaqua, Pa.—p. 351.
Device to Be Used in Lateral Homonymous Hemianopsia. A. Wiener, New York.—p. 362.
Congenital Tumor Mass at Edge of Optic Disk. A. M. Yudkin, New Haven, Conn.—p. 364.
Case of Subconjunctival Echinococcus. G. R. Hare, New York.—p. 367.
Normal Reserve Accommodation in Presbyopia. F. J. Slataper, Houston, Texas.—p. 370.

California and Western Medicine, San Francisco

25: 1-144 (July) 1926

Further Fallacies of Sheppard-Towner Propaganda. W. C. Woodward, Chicago.—p. 33.
Essential Hypertension. R. E. Thomas, Los Angeles.—p. 36.
Appendicitis Problem. T. O. Burger, San Diego.—p. 38.
Importance of Buck's and Colles' Fasciae in Urinary Extravasation M. B. Wesson, San Francisco.—p. 40.
Derangement of Ankle-Joint Following Fractures of Lower End of Tibia and Fibula. L. D. Prince, San Francisco.—p. 42.
Acrodynia. A. J. Scott, Jr., Los Angeles.—p. 47.
*Treatment of Sexual Impotence. V. G. Vecki, San Francisco.—p. 51.
Neurosis of Condemned. Case. J. Catton, San Francisco.—p. 52.
*Therapeutics of Syphilis. H. Morrow, San Francisco.—p. 55.
*Carcinoma of Colon, Not Including Rectum. S. Robinson, Santa Barbara.—p. 58.
*Cardiac Decompensation During Pregnancy. K. L. Schaupp, San Francisco.—p. 63.
Local Anesthesia Alone or Combined with General Anesthesia in Abdominal Surgery. H. A. L. Ryfkogel and E. Carlson, San Francisco. —p. 65.
*Industrial Liability for Cancer. A. R. Kilgore and C. E. Smith, San Francisco.—p. 70.

Treatment of Sexual Impotence.—In the treatment of impotence, Vecki says the use of some internal remedy may be indicated and be sufficient in some cases. The so-called aphrodisiacs sometimes accomplish something. Iron, arsenic and mainly large doses of strychnine may give results. Atropine, cautiously used, may help in some conditions; combined with some purgative, it may have surprisingly good results in cases of autointoxication. Narcotics should not be used, while instillations of a drop or two of procaine into the meatus against premature ejaculation is fairly safe. Alcohol is indispensable in frigidity and premature ejaculation. No matter what drug may be employed, in the great majority of cases simultaneous feeding of desiccated glands of internal secretion is indicated, either thyroid alone or in combination with suprarenal, pituitary, gonads and hemoglobin. Small doses should be used over a long period. The patient, however, must be watched constantly; the influence of the opotherapeutic preparations on well being, weight and mainly on the blood pressure must be controlled. In cases resisting internal opotherapy, intramuscular and intravenous injections are to be given, but only proper material freshly prepared will do. Almost constantly good results are obtained by subcutaneous implantations, as devised by Stanley. Bad and unhygienic habits must be corrected, the diet regulated, the intestinal tract kept clean and in spite of all difficulties the sexual life must be regulated. Ultraviolet rays are sometimes useful and psychotherapy is never to be neglected.

Treatment of Syphilis.—Mercury given hypodermically after a course of arsphenamine or neo-arsphenamine should, in Morrow's opinion, be the routine treatment. Sulpharsphenamine should be confined to cases of congenital syphilis and to patients who cannot have arsphenamine or neo-arsphenamine given them. The bismuth preparations should be confined to cases of late syphilis, especially those with Wassermann fast reactions, after courses of mercury and the arsenicals.

Carcinoma of Colon.—The points made by Robinson are that patients with sufficiently severe toxemia from complete cancerous obstruction of the bowel will die in spite of any operation, however well chosen or well executed. Resection and anastomosis in a single operation done in the presence of obstruction is generally fatal. Even in partial obstruction, resection and anastomosis generally fail unless the bowel has been cleared previously of its contents either by repeated irrigations when such are possible, or by a preliminary colostomy or ileostomy. Fecal retention after anastomosis is toxic; distention may cause necrosis about the suture. Infection is the most common cause of death following resection of tumors of the colon. Anastomoses are apt to leak, causing general or local peritonitis, if the suture is imperfect, if the blood supply to the anastomosing ends is a poor one, or if it is cut off during the operation. In many patients, leakage resulting from the pressure of distention proximal to the suture line causes death that might have been obviated by a postoperative ileostomy. Masses of inflammatory glands may be excluded from the portion resected, but malignant glands, if not removed, generally hasten the disease to an early termination. Resections not designed to include most of the involved glands rarely cure; hence, the large number of fatalities within the first two years. Neglect of preoperative preparation, a choice of operation inconsistent with the patient's condition, lack of provision to avoid postoperative distention, disregard of blood supply during anastomosis, and poorly executed intestinal suturing are errors that lead to disaster.

Cardiac Decompensation During Pregnancy.—Schaupp states that when cardiac disease exists the patient must be carefully watched for signs of decompensation, and if decompensation occurs treatment should be instituted at once. Under treatment most patients improve, but where they do not we have often the added complication of an operative termination of the pregnancy. Early in pregnancy it may be a curettage, later any one of a number of operations, but in any case an anesthetic may be an added burden.

Industrial Liability for Cancer.—It has become the practice of commissions to hold occupational injury responsible for cancer under certain conditions. These conditions have been laid down and generally accepted by authorities, and compensation should be awarded as the conditions are or are not fulfilled in individual cases. Kilgore and Smith insist that insurance carriers should protect themselves as well as the employee by insisting on repeated examination after the immediate effects of trauma have cleared up in all cases of injury of a type likely to result in cancer. If cancer is demonstrated as soon as the swelling or contusion has gone down, the inference of preexisting cancer can be made and the injury absolved from responsibility for starting the growth. On the other hand, if cancer does develop it may be found early enough to make surgical cure possible. These considerations are especially applicable to the breast.

Georgia Medical Association Journal, Atlanta

15: 260-298 (July) 1926

High Fat, Rich Vitamin Diet in Ulcers of Stomach and Duodenum: Protest Against Routine Diets. S. Harris, Birmingham, Ala.—p. 260.
Gastric Carcinoma: Three Cases of Apparent Cure. W. P. Nicolson, Jr., Atlanta.—p. 272.
Subluxation Fracture of Dorsal Spine: Case. J. W. Simmons, Brunswick. —p. 276.

Journal of Bacteriology, Baltimore

12: 1-85 (July) 1926

Accessory and Stimulating Factors in Certain Culture Mediums. J. R. Sanborn, Amherst, Mass.—p. 1.
Effect of Surface Tension on Growth of Lactobacillus Acidophilus and Lactobacillus Bulgaricus. W. R. Albus and G. E. Holm. Washington, D. C.—p. 13.
Spirillum Virginianum, Nov. Spec. V. T. Dimitroff, Baltimore.—p. 19.
Etiology of Canary Bird Epizootic. F. R. Beaudette and P. R. Edwards, New Haven, Conn.—p. 51.
Micro-organisms Concerned in Decomposition of Celluloses in Soil. S. A. Waksman and C. E. Skinner.—p. 57.

Journal of Biological Chemistry, Baltimore

69: 1-275 (July) 1926

Estimation of Glucose in Presence of Phosphate Buffers. M. B. Visscher, Minneapolis.—p. 1.
Optimum *p*H for Glycogenase Action and Its Bearing on Regulation of Glucose Level in Body. M. B. Visscher, Minneapolis.—p. 3.
*Blood Sugar Studies. II. Initial Rise. J. C. Bock, H. Schneider and M. Gilbert, Milwaukee.—p. 9.
*Effect of Light on Creatinine and Creatine Excretion and Basal Metabolism. M. Eichelberger, Chicago.—p. 17.

*Dietary Requirements for Reproduction. V. Rôle of Various Vegetable and Fruit Oils in Fertility and Lactation. B. Sure, Fayetteville, Ark.—p. 29.
*Id. VI. Types of Sterility Produced on Skimmed Milk Powder Reproduction-Deficient Diet. B. Sure, Fayetteville, Ark.—p. 41.
*Id. VII. Existence of Lactation Promoting Factor in Unsaponifiable Matter from Wheat Oil. B. Sure, Fayetteville, Ark.—p. 53.
Comparison of Electrometric and Colorimetric Methods for Determination of *pH* of Gastric Contents. G. Kahn and J. Stokes, Jr., Philadelphia.—p. 75.
Proteins of Wheat Bran. III. Nutritive Properties of Proteins of Wheat Bran. J. C. Murphy and D. B. Jones, Washington, D. C.—p. 85.
*Blood Picture of Calves on Sole Diet of Milk or of Milk with Addition of Various Supplements. III. C. F. Huffman and C. S. Robinson, East Lansing, Mich.—p. 101.
Electrodialysis of Human Blood Serum. A. Bernhard and J. J. Beaver, New York.—p. 113.
Metabolism of Sulphur. X. Determination of Cystine in Urine. H. B. Lewis and R. H. Wilson, Ann Arbor, Mich.—p. 125.
Ketosis in Pregnancy. V. J. Harding and K. D. Allin, Toronto.—p. 133.
Strophanthin. X. On K-Strophanthin-Beta and Other Kombé Strophanthins. W. A. Jacobs and A. Hoffmann, New York.—p. 153.
Configurational Relationships of 2-Hydroxy, 3-Hydroxy, and 4-Hydroxy Acids. P. A. Levene and H. L. Haller, New York.—p. 165.
Pentamethyl Glucose and Its Dimethyl Acetal. P. A. Levene and G. M. Meyer, New York.—p. 175.
Cholesterol and Phospholipid Content of Cutaneous Epithelium of Man. H. C. Eckstein and U. J. Wile, Ann Arbor, Mich.—p. 181.
New Benedict Method for Determination of Blood Sugar. R. Rockwood, Baltimore.—p. 187.
Benzolated Amino-Acids in Animal Organism. III. Determination and Synthesis of Hippuric Acid in Rabbits. W. H. Griffith, St. Louis.—p. 197.
Optical Activity of Cysteine. J. C. Andrews, Philadelphia.—p. 209.
Influence of Character of Ration on Composition of Body Fat of Hogs. II. N. R. Ellis and H. S. Isbell, Washington, D. C.—p. 219.
Effect of Food Fat on Body Fat, as Shown by Separation of Individual Fatty Acids of Body Fat. III. N. R. Ellis and H. S. Isbell, Washington, D. C.—p. 239.
Animal Calorimetry. XXXIII. Influence of Amytal on Metabolism of Dog. H. J. Deuel, Jr., W. H. Chambers and A. T. Milhorat, New York.—p. 249.
Oxidation of Methylated Glucoses. H. Sobotka, New York.—p. 267.

Initial Rise of Blood Sugar.—Experimental evidence leads Bock et al. to believe that the response of the glycogenic function to the influx of glucose is not an immediate, nor a very powerful one. The reaction of the body to the increased sugar in the circulation is comparatively slow; otherwise, the rise in the blood sugar concentration could not start within such a short period and be so rapid. The amount of sugar that enters the intestine in a given time is not known. It is therefore impossible to establish any exact relation as to quantity and time. There is a possibility that the blood sugar must rise to a certain point, variable with the individual, before a stimulation occurs. The authors have observed that individuals who are rather fond of sweets show a more gradual rise than others. This would point to a glycogenic function capable of a quicker response.

Effect of Light on Creatinine and Creatine Excretion.—The creatinine and creatine excretion of three normal women and two children as affected by the irradiation from sunlight was observed by Eichelberger during three summer months and two autumn months. Similar observations were made with the carbon arc light during the winter months. A study was also made of the effect of irradiation by the carbon arc on the basal metabolism of nine normal women and two men. Light from the sun and from the carbon arc increased the creatinine excretion for the hour of irradiation and then decreased the excretion of creatinine for several hours, after which the excretion finally returned to the level obtained before the irradiation. Irradiation by sunlight had no effect on the creatine excretion of normal women or of the children studied. Creatine was a constant component of both the urines. Exercise increased the hourly creatinine excretion, in some cases to a higher degree than did irradiation. Autumn sunlight did not increase the creatinine excretion as much as the sunlight of the summer months. Irradiation had no immediate effect on basal metabolism. There is no apparent relation between the effect of irradiation on creatinine excretion and the basal metabolic rate.

Effect of Diet on Lactation.—The effect of the reduction of the concentration of wheat oil in the basal diet on lactation and the effect of the addition ot various vegetable and fruit oils to the basal diet on fertility and lactation were studied by Sure. Of all the vegetable and fruit oils studied, wheat oil, cottonseed oil, corn oil and palm oil are the only ones that permitted normal lactation and exhibited antisterility properties. Of these wheat oil is the most potent. Peach kernel, soy bean, peanut and olive oils were found nonpotent for lactation but were effectual in curing sterility. Linseed, coconut, sesame, palm kernel, rape seed, mustard seed, oil of sweet almonds, and commercial corn oil (Mazola) were found deficient in antisterility properties. Reducing the concentration of wheat oil, corn oil, and cottonseed oils in the basal ration results in corresponding greater infant mortality.

Sterility Produced by Deficient Diet.—Two forms of sterility have been encountered by Sure on a skimmed milk ration used in studies of reproduction. One form of sterility is observed in first generation females, which is characterized by a resorption of the fetus. The second form of sterility arises in second generation animals receiving a diet containing skimmed milk powder, prepared from winter milk, and can be prevented by incorporating in the basal diet, containing 3 per cent wheat oil, 0.05 per cent of equal amounts of potassium aluminum sulphate, sodium fluoride, manganese sulphate and sodium silicate. The technic of supplementing the basal diet with Harris yeast vitamin is described, which must be strictly adhered to in order that optimum results may be secured in lactation.

Lactation Promoting Factor in Diet.—Experimental evidence is presented by Sure showing that the reproductive dietary complex, which he terms vitamin E, possesses lactation promoting as well as antisterility properties. Studies on the stability of the reproductive factor toward heat and oxidation suggest the possibility of wheat oil containing two fat-soluble dietary factors, one thermostabile, possessing antisterility properties, and the other thermolabile possessing lactation promoting properties. Results of studies on storage of the reproductive factor furnish further suggestive evidence for the existence of two fat-soluble factors in wheat oil, one essential for lactation and the other for fertility.

Milk Diet Causes Convulsions.—A study has been made by Huffman and Robinson of the effects on calves of a ration of milk alone or of milk with the addition of various supplements. The most striking result of such treatment is the development of convulsions resembling those due to the removal of the parathyroid glands. The symptoms are accompanied by a lowering of the calcium content of the blood. The inorganic phosphate, chlorides, and bicarbonate content of the blood show no characteristic changes. There is no evidence from the results obtained that the condition is due to an acidosis.

Journal of Bone and Joint Surgery, Boston

8: 461-700 (July) 1926

How to Diagnose and Treat Bone Lesion. I. Central Lesions. J. C. Bloodgood, Baltimore.—p. 471.
Operative Treatment of Congenital Torticollis: Exsection of Two Heads of Sternocleidomastoid. D. Silver, Pittsburgh.—p. 489.
Bone Graft for Sacro-Iliac Fixation. P. J. Verrall, London.—p. 491.
Operative Treatment of Fractures of Shaft of Femur with Maximum Fixation. W. O. Sherman, Pittsburgh.—p. 494.
Chronic Osteitis of Semilunar Bone (Kienböck's Disease). M. S. Henderson, Rochester, Minn.—p. 504.
*Two Unusual Conditions Presenting Obstacle to Reduction Found by Open Operation for Congenital Dislocation of Hip. Z. B. Adams, Boston.—p. 507.
Fractures of Surgical Neck and Epiphyseal Separations of Upper End of Humerus. H. E. Conwell, Fairfield, Ala.—p. 508.
Congenital Dislocation of Hip: Celluloid Casts for Infants. E. W Ryerson, Chicago.—p. 517.
Spontaneous Reduction of Right Hip Joint in Bilateral Dislocation of Hip. A. M. Steinfeld, Columbus, Ohio.—p. 519.
*Hip Joint Tuberculosis Treated by Operation Devised to Eliminate Motion. R. A. Hibbs, New York.—p. 522.
Congenital Dislocation of Hip: Replacement Operation. I. Balensweig, New York.—p. 534.
Open Operation for Congenital Dislocation of Hip. H. P. H. Galloway, Winnipeg, Manit.—p. 539.
*Congenital Dislocation of Hip. B. P. Farrell, H. L. Von Lackum and A. D. F. Smith, New York.—p. 551.
Osteomas of Lower End of Tibia. E. Weinberg, Baltimore.—p. 562.
*Case of Legg-Perthes' Disease. F. C. Kidner, Detroit.—p. 565.
*Compensation vs. Correction in Treatment of Structural Scoliosis. A. Steindler, Iowa City.—p. 570.
Tensor Fasciae Femoris. A. M. Forbes, Montreal.—p. 589.

Operations in Treatment of Spastic Paralysis. H. L. Von Lackum, New York.—p. 590.
*Trophic Osteopathy. E. B. Mumford, Indianapolis.—p. 601.
Ununited Fractures: Chemistry of Blood. M. S. Henderson, T. P. Noble and K. Sandiford, Rochester, Mnn.—p. 607.
Significance of Accessory Tarsal Scaphoid. I. Zadek, New York.—p. 618.
Transplantation of Fibula to Replace Bony Defect in Shoulder Joint. R. Hammond, Providence, R. I.—p. 627.
Tuberculosis of Hip in Children. L. D. Smith, Milwaukee.—p. 636.
Paget's Disease. H. B. Philips, New York.—p. 643.
Cartilage Injuries. W. W. Lasher, New York.—p. 651.
*Vaccine Therapy and Serologic Diagnosis in Arthritides. R. Burbank, New York.—p. 657.
Mechanisms Involved in Removal of Colloidal and Particulate Carbon from Joint Cavities. J. A. Key, St. Louis.—p. 666.

Difficult Reduction of Congenital Dislocation of Hip.—In a case cited by Adams, the right hip had a strong transverse band in the front of the capsule (a fold of the capsule?) which was cut through before the head could be put in the socket. The tendon of the rectus was also tenotomized and then the head went into the socket with ease and stayed there when the thigh was brought to 35 degrees position and kept inwardly rotated. In the left hip joint, the bands were found deep in the socket at the back, possibly a thickened cotyloid ligament folded in before the head, at the first reduction. This band being cut and the tendon of the rectus tenotomized, the leg could be put in the 35 degrees position and in inward rotation. The head was secure in the socket.

Fusion Operation for Hip Joint Tuberculosis.—An attempt has been made by Hibbs to produce a fusion of the hip joint by an extra-articular method, similar to that used in the treatment of tuberculosis of the vertebral articulations. This has been done in twenty cases by transposing the trochanter so that it makes contact with the ilium above and with the femur below and at the same time secures continuity of periosteum.

Congenital Dislocation of Hip Reduced by Open Operation.—Farrell and his associates believe that practically every congenital dislocation of the hip within a reasonable age limit can be reduced by open operation and in that way improved. In any large series of cases of congenital dislocation of the hip as now seen, success by closed reduction can be expected in only about 50 per cent.

Legg-Perthes' Disease.—Kidner reports a case of an unusual noninfectious interference with bone and cartilage growth in the upper end of the femur. The changes are more extensive than is usually seen in Legg-Perthes' disease or coxa plana.

Treatment of Structural Scoliosis.—Steindler contends that the current methods of direct application of force to the scoliotic contracture do not produce the desired degree of correction, and that they, by virtue of the resulting relaxation, aggravate the problem of maintenance of correction. On the other hand, the realinement of the spine by compensation attains a satisfactory degree of body symmetry and of proper redistribution of weight without relaxation of the spine; this method, therefore, does not interfere with maintenance of position but enhances it by alleviating gravital stresses. Furthermore, in a number of cases in which realinement was by compensation, the patients may be expected to hold their equilibrium indefinitely by their own muscle power. Finally, those spines in which subsequent stabilization by operative means will be necessary are, by virtue of this realinement by compensation without relaxation, in better position to hold after operation than those operated on in a state of decompensation.

Trophic Osteopathy.—The four cases reported by Mumford represent definite and distinct bone changes in association with lesions of the lower neuron tract. As the bone change could be accounted for only through a disturbance in the nerve influence, it has been termed "trophic osteopathy." It is Mumford's opinion that the only plausible explanation for the bone changes in these four cases must be based on some disturbance in the nervous nutritional influences and not on a pyogenic infection. Every case of paralysis of the superficial peroneal nerve in which a callosity develops beneath the fifth metatarsal should be carefully studied for any bone change.

Vaccine Therapy in Arthritis.—Burbank asserts that favorable results may be obtained with vaccine therapy in practically all such cases of arthritis as show a favorable complementary value, have no undraining focus and in which the patients are not suffering from some debilitating disease such as tuberculosis, diabetes, carcinoma, and sometimes syphilis, and have patience to continue treatment over considerable periods.

Journal of General Physiology, Baltimore

9: 715-858 (July) 1926

Empiric Formula for Relation Between Viscosity of Solution and Volume of Solute. M. Kunitz, New York.—p. 715.
Relative Susceptibility to Arsenic in Successive Instars of Silkworm. F. L. Campbell, Boston.—p. 727.
Toxic Action of Copper on Nitella. S. F. Cook, Cambridge, Mass.—p. 735.
Size of Pores in Collodion Membranes. D. I. Hitchcock, New York.—p. 755.
Duration of Life of Aseptic Drosophila Culture Inbred in Dark for Two Hundred and Thirty Generations. J. H. Northrop, New York.—p. 763.
Convenient Method for Formol Titration. J. H. Northrop, New York.—p. 767.
Metabolism of Normal and Malignant Cells. J. A. Hawkins, New York.—p. 771.
Physiologic Ontogeny. A. Chicken Embryos. X. Temperature Characteristic for Contraction Rate of Isolated Fragments of Embryonic Heart Muscle. H. A. Murray, Jr., New York.—p. 781.
Id. XI. p_H, Chloride, Carbonic Acid and Protein Concentrations in Tissues as Functions of Age. H. A. Murray, Jr., New York.—p. 789.
Effect of High Pressure on Germination of Seeds (Medicago Sativa and Melilotus Alba). P. A. Davies, Cambridge, Mass.—p. 805.
Bacterial Filters. S. P. Kramer, Cincinnati.—p. 811.
Ultrafiltration Through Collodion Membranes. A. Grollman, Baltimore.—p. 813.
*Theory of Phagocytosis. E. Ponder, Edinburgh.—p. 827.
Physiologic Principle of Minimum Work Applied to Angle of Branching of Arteries. C. D. Murray, Bryn Mawr, Pa.—p. 835.

Theory of Phagocytosis.—In his discussion of the phenomenon of phagocytosis, Ponder introduces a fourth factor, hitherto unmentioned—the influence of electric charge of cell and particle on the phagocytosis.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

28: 1-156 (July) 1926

Effect of Acidity of Solvent on Stability of Active Principle of Infundibulum. A. Stasiak, Washington, D. C.—p. 1.
Relation of Stimulus (Dose) to Effect. A. T. Cameron and W. G. Mackersie, Winnipeg, Manit.—p. 9.
Effect of Ephedrine on Circulation. K. K. Chen aand W. J. Meek, Madison, Wis.—p. 31.
Comparative Study of Ephedrine, Tyramine and Epinephrine. K. K. Chen and W. J. Meek, Madison, Wis.—p. 59.
*Effect of Atropine on Pulse Rate. D. Nicholson, Winnipeg.—p. 77.
*Pharmacology of Bismuth Salts. I. Determination of Bismuth. C. S. Leonard, New Haven, Conn.—p. 81.
Id. II. Toxicity and Urinary Elimination of Soluble Bismuth Salts. C. S. Leonard, New Haven, Conn.—p. 89.
Id. III. Toxicity and Urinary Elimination of Potassium Bismuth Tartrate. C. S. Leonard and J. L. O'Brien, New Haven, Conn.—p. 109.
Id. IV. Toxicity and Urinary Elimination of Bismuth Oleate and Bismuth Metal. C. S. Leonard, New Haven, Conn.—p. 121.
*Lymph Alterations Following Sodium Chloride and Iodide Injections. W. F. Petersen and T. P. Hughes, Chicago.—p. 131.
Toxic Effects of Certain Gold Compounds. H. Brown, E. R. Saleeby and J. F. Schamberg, Philadelphia.—p. 141.

Effect of Atropine on Pulse Rate.—In a series of sixty-two normal medical students studied by Nicholson, the injection of 1/33 grain (2 mg.) of atropine caused an increase in pulse rate ranging from 5 to 89, with an average increase of 39.31 per minute in sixty-one. Only two showed an increase of pulse rate less than 15 following the injection, one showing a decrease in pulse rate of 12.

Determination of Bismuth.—A method is described by Leonard for the rapid accurate determination of small quantities of bismuth in body fluids and tissues. This depends on the wet combustion of the organic matter, followed by colorimetric determination of bismuth as the iodide.

Lymph Alteration Following Sodium Chloride and Iodide Injection.—The lymph of dogs following intravenous injection of sodium chloride in small doses shows an increase in volume with diminished protein concentration. Following sodium iodide injection, the volume is altered very little but the protein concentration is increased. In animals with pathologic lesions—trauma, tuberculosis—injections of sodium

chloride are followed by more marked reactions. These, according to Petersen and Hughes, are probably due to the increased lability of the capillary endothelium or of the autonomic nervous system. The augmented reactivity to sodium chloride injections may bear some relation to the supposed therapeutic effect of salt injection in tuberculosis.

Journal of Urology, Baltimore

16: 1-95 (July) 1926

*Leukoplakia of Urinary Tract. W. T. Briggs and E. S. Maxwell, Lexington, Ky.—p. 1.
Bilateral Uretero-Nephrosis Associated with Congenital Gaping Ureteral Orifices. J. C. Sargent, Milwaukee.—p. 23.
Fluoroscope as Aid to Making Pyelograms. W. W. Cross, Oakland, Calif.—p. 37.
*Case of Recurrent Urinary Lithiasis: with Small Amount of Renal Tissue. F. Hinman and T. E. Gibson, San Francisco.—p. 43.
Results of Punch Prostatectomy. H. C. Bumpus, Jr., Rochester, Minn. —p. 59.
Leiomyoma of Prostate. H. G. Bugbee, New York.—p. 67.
*Vesiculography by Means of Iodized Oils. W. T. Belfield and H. C. Rolnick, Chicago.—p. 73.
Caudal Analgesia in Cystoscopy. A. E. Goldstein, Baltimore and T. J. McBee, Morgantown, W. Va.—p. 85.
*Persistence of Cloaca. W. J. Pennock and W. J. Stark, Spokane, Wash. —p. 93.

Leukoplakia of Urinary Tract.—Three cases of urinary leukoplakia, one vesical and two renal, are reported by Briggs and Maxwell. Abstracts of five renal and ten bladder cases are added in order to bring the literature up to date. This makes a total of eighty cases of urinary leukoplakia.

Recurrent Urinary Lithiasis.—Hinman and Gibson report a case of recurrent urinary lithiasis occurring in a physician in active practice. Particularly noteworthy in this case are the rapidity of recurrence of the stones after repeated removal, the frequent attacks of anuria with high blood nitrogen retention, the extensive destruction of renal tissue without corresponding functional impairment, the patient's ability to carry on active practice as a physician in spite of almost entire destruction of the kidneys, and finally death, apparently not renal in origin but due to sudden cardiac failure.

Vesiculography with Iodized Oils.—Belfield and Rolnick have used for roentgenography and therapy of the seminal ducts various iodine compounds dissolved in oil injected through vasotomy, usually bilateral, with immediate roentgenograms. These pictures reveal certain features of the ducts, which are said not to have been described in the living or dead.

Persistence of Cloaca.—Both the children referred to by Pennock and Stark were born with a congenital anomaly, an imperforate anus. In neither case was there a sphincter ani muscle, nor any demonstrable perineal body. In neither case was there any fistulous tract, but simply an absence of tissue where the rectum and urethra communicated. Operation was successful in both cases.

Military Surgeon, Washington, D. C.

59: 1-143 (July) 1926

Military Service in Tropics: Effect on Health and Efficiency. J. F. Siler.—p. 1.
Reorganization of Military Sanitary Service of French Army. T. Tuffier. —p. 28.
One Century Ago. P. M. Ashburn.—p. 33.
Field Laboratory at Work. E. P. Bugbee.—p. 44.
Report on Third International Congress of Military Medicine, Surgery and Pharmacy. W. S. Bainbridge.—p. 48.
Malarial Fevers in U. S. Army and at Selected Stations. A. G. Love. —p. 69.

Minnesota Medicine, St. Paul

9: 365-430 (July) 1926

Carcinoma of Larynx. G. B. New, Rochester.—p. 365.
Goiter Surgery. L. Murphy, Minneapolis.—p. 369.
Treatment of Hand Infections and Injuries. M. O. Oppegaard, Crookston.—p. 373.
Traumatic Spondylolisthesis. M. O. Henry, Minneapolis.—p. 376.
Stricture of Ureter. E. Bratrud, Warren.—p. 380.
*Pernicious Anemia. J. B. Carey, Minneapolis.—p. 385.
Nasal Septum. E. L. Armstrong, Duluth.—p. 392.
Toxemia of Pregnancy. J. H. Beaty, St. Cloud.—p. 396.
Balanced Anesthesia. J. S. Lundy, Rochester.—p. 399.
Trudeau, Scientist. W. J. Marcley, Minneapolis.—p. 405.

Pernicious Anemia.—Of ninety cases of pernicious anemia analyzed by Carey in which any historic data at all were available, ten patients gave positive histories of the occurrence of probable pernicious anemia in the family. There was also a large percentage (about 30 per cent) of tuberculosis and cancer which might raise the percentage of pernicious anemia still higher. Twenty-three cases of idiopathic achylia show as yet no other evidence of pernicious anemia. It is significant that the blood counts of four of these patients show indexes of 0.9 to 1.0. The blood smears of those showing the high indexes show certain other suggestive pernicious anemia criteria, such as macrocytes and hyperchromasia. Four patients with achylia developed pernicious anemia while under observation. In sixty cases of pernicious anemia in which the histories were sufficiently detailed to be of value, seven patients gave histories suggesting a preexisting gastric achylia before the onset of definite pernicious anemia symptoms.

Nebraska State Medical Journal, Norfolk

11: 249-288 (July) 1926

Progress of Surgery. H. H. Davis, Omaha.—p. 249.
Systemic Blastomycosis. P. A. Reed, Omaha.—p. 257.
Goiter. P. B. McLaughlin, Sioux City, Iowa.—p. 260.
Acute Abdomen. E. G. Johnson, Grand Island.—p. 263.
Value of Medical Inspection of Schools. E. R. Hayes, Falls City.—p. 266.

New Orleans Medical and Surgical Journal

79: 1-82 (July) 1926

How to Add Years to Life and Life to Years. W. D. Haggard, Nashville.—p. 1.
Louisiana State Medical Society and Medical Progress—1895-1926. R. Matas, New Orleans.—p. 5.
More Common Injuries to Female Perineum as Result of Childbirth: Treatment. W. D. Phillips, New Orleans.—p. 15.
Dementia Praecox. C. P. May, Jackson, La.—p. 19.
*Chronic Bronchitis with Hemorrhagic Sputum of Nontubercular Origin. A. Castellani, New Orleans.—p. 20.
Insanity Responsibility. J. A. O'Hara, New Orleans.—p. 43.
Etiology of Peptic Ulcer. E. G. Walls, New Orleans.—p. 46.
Diagnosis and Care of Failing Heart Muscle. A. Eustis, New Orleans. —p. 50.
Treatment of Purpura Hemorrhagica by Splenectomy: Case. W. S. Kerlin, Shreveport, La.—p. 58.
Postoperative Chronic Duodenal Obstruction with Gastric Dilatation: Case. D. C. Browne, New Orleans.—p. 61.

Chronic Bronchitis of Nontuberculous Origin.—In Castellani's opinion, the subject of hemorrhagic bronchitis of protozoal, helminthic and fungal origin deserves to attract more attention than has been the case hitherto. All these conditions are generally mistaken for tuberculosis, but while pulmonary tuberculosis in the hemorrhagic stage is often incurable, most of these protozoan conditions, provided the correct diagnosis is made in time, are amenable to treatment.

New York State Journal of Medicine, New York

26: 661-696 (Aug. 1) 1926

Asthma and Calcium Ion H. A. Patterson, Sonyea.—p. 661.
*Intravenous Calcium Injections in Asthma, Hay-Fever and Allied Conditions. A. A. Thommen, New York.—p. 665.
*Subacute Infective Endocarditis with Mycotic Aneurysm and Meningeal Symptoms. D. P. Waldman and M. H. Kahn, New York.—p. 667.
Diet in Treatment of Chronic Arthritis. R. Pemberton, Philadelphia. —p. 668.
Transduodenal Irrigation for Intestinal Conditions. M. E. Jutte, New York.—p. 672.
Recognition of Chronic Nephritis in Early Stages. N. B. Foster, New York.—p. 674.

Calcium in Treatment of Hay-Fever.—In all, nineteen cases of asthma, belonging for the most part to the nonsensitive group, were intensively treated by Thommen by means of calcium injections. Two preparations were used: (1) a 5 per cent solution of calcium chloride in doses of from 5 to 10 cc., and (2) a proprietary in the form of a 10 per cent solution of calcium urea. Some cases were treated exclusively with one or the other. The majority, however, received injections of both. In all, 198 injections were administered. They were apparently very well borne, for no untoward effects were observed. The injections were administered biweekly in most cases; in others, every day. One patient, who was considered a particularly good subject, received injections twice daily for four successive days. No marked effects were observed in any case. When used as a succedaneum for epinephrine to

control the paroxysm, it proved entirely valueless. Similar negative results were obtained in cases of hay-fever.

Subacute Bacterial Endocarditis.—A case is reported by Waldman and Kahn of subacute bacterial endocarditis presenting an etiology in tonsillitis, with joint pains and the characteristic symptoms of fever, progressive pallor, extensive valvular heart involvement, numerous petechiae, symptoms of emboli in the spleen and kidneys, the development of mycotic aneurysm in the left carotid artery, and finally signs of meningeal irritation. The intravenous use of dyes and transfusion of blood from a donor immunized against *Streptococcus viridans* were of no avail.

Rhode Island Medical Journal, Providence

9: 119-134 (Aug.) 1926

Cerebrospinal Fluid. J. E. Donley, Providence.—p. 119.
Treatment of Neurosyphilis. W. N. Hughes, Providence.—p. 126.

Southern Medical Journal, Birmingham

19: 501-582 (July) 1926

Pyelitis. H. F. Helmholz, Rochester, Minn.—p. 501.
Carcinoma of Esophagus. E. B. Freeman and H. E. Wright, Baltimore.—p. 508.
Modern Aspects of Syphilis. C. B. Willmott, Louisville, Ky.—p. 513.
*Four Cases of Olivo-Ponto-Cerebellar Atrophy Giving History of Heredity. W. Keiller, Galveston, Texas.—p. 518.
*Rickets. L. von Meysenbug, New Orleans.—p. 522.
Nonsurgical Drainage of Bile Channels. E. B. Milam, Jacksonville, Fla.—p. 526.
Child Health Demonstration. B. W. Carey, Athens, Ga.—p. 532.
Morbidity Reports in County Health Work. R. K. Flannagan, Richmond, Va.—p. 535.
Lesions of Bone. J. C. Bloodgood, Baltimore.—p. 541.
Apophysitis of Os Calcis. J. T. O'Ferrall, New Orleans.—p. 549.
Papillary Epithelioma of Kidney Pelvis: Nephrectomy. P. Bromberg, Nashville, Tenn.—p. 550.
Cervical Cesarean Section. M. A. Hanna, Kansas City, Mo.—p. 554.
Major Postoperative Conditions Following Acute Suppurative Appendicitis. F. L. Barnes, Houston, Texas.—p. 558.
Deficient Fixation of Right Colon. F. C. Beall, Fort Worth.—p. 560.
Cavernous Sinus Thrombosis: Case. D. C. Montgomery, Greenville, Miss.—p. 566.
Septicemia of Otitic Origin. F. E. Hasty, Nashville, Tenn.—p. 570.

Hereditary Olivo-Ponto-Cerebellar Atrophy.—Two brothers and a nephew on a sister's side have suffered for from seven to twelve years from generalized cerebellar symptoms, chiefly coarse, intention tremors, staggering gait, dyssynergia and dysmetria, with slurring speech. All three died during the third decade. Two nieces, one 34 and one 28, are alive and suffering from similar symptoms. Keiller says the history is strongly suggestive of heredity on the female side. Necropsies in three of the cases reveal the typical lesions of Dejerine and Thomas' olivo-ponto-cerebellar atrophy. There is no reason to regard the condition as being due to syphilis. The nature of the lesions suggests an abiotrophic atrophy. These cases are the only ones within Keiller's knowledge in which this particular form of cerebellar defect has shown hereditary characters. Added to this is a very marked loss everywhere of lower motor neuron cells, a condition not described in Dejerine and Thomas' cases. This loss is not in accord with the firm muscles, or with the complete absence of the postmortem appearance of sections of the thighs and upper arms of one patient. The limbs themselves were lost sight of before the muscular integrity could be verified by dissection, but there was nothing in the appearance of the body suggesting muscular atrophy.

Rickets: Phosphorus Ion.—As the result of laboratory and clinical investigations, von Meysenbug's interest now centers around the phosphorus ion in the study of the metabolism of rickets. A low phosphorus diet produces rickets in the rat; a low blood inorganic phosphate accompanies active rickets in the infant. Therapeutic measures raise the blood phosphate. Sunlight and ultraviolet rays from artificial sources applied to the rat or infant will cure or prevent rickets. Cod liver oil has a similar curative and preventive action. Inert substances, such as linseed and cottonseed oils, have been rendered active antirachitic agents after irradiation with ultraviolet rays. The factor in cod liver oil and irradiated oils that is responsible for the cure of rickets is separate and distinct from the fat-soluble A vitamin.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

10: 417-464 (Aug.) 1926

Case of Traumatic Asphyxia. L. J. C. Mitchell.—p. 417.
Air Bubbles in Vitreous. R. F. Moore.—p. 418.
Peripheral Relations of Musculus Dilatator Pupillae. P. O. Berner.—p. 420.
New Formed Vessels in Vitreous of Specific Origin. C. A. Clapp.—p. 435.

British Journal of Tuberculosis, London

20: 101-145 (July) 1926

Present Outlook of Voluntary Sanatorium. A. Adams.—p. 101.
Prevention of Tuberculosis in Japan. T. Satow.—p. 105.
*Treatment of Tuberculosis. A. N. Robertson.—p. 111.
*Alpine Climate in Summer and Winter. C. Dorno and B. Hudson.—p. 116.
Standardized Technic in Radiography of Cases of Pulmonary Tuberculosis. P. G. Sutton.—p. 123.

Treatment of Tuberculosis.—Of all methods and means of treatment of pulmonary tuberculosis, Robertson has confidence in only two: sanatorium treatment and artificial pneumothorax. Drugs, vaccines, colloids, oils and what not have all been found useless by Robertson.

Value of Mountain Climate in Treatment of Tuberculosis.—The best cases of pulmonary tuberculosis for treatment in the mountains, according to Dorno and Hudson, are young or middle-aged subjects of fairly good general constitution, possessed of sufficient resistance and power of reaction necessary to respond properly to the increased rate of metabolic activity which occurs at that altitude. This type of case almost invariably does well. General nutrition and health improve, and the progress of the disease is soon arrested. A person who can just manage to live comfortably in the plains on the smallest amount of metabolic change that his system can sustain will quickly lose ground in the mountains. His power of response to the more exacting conditions of mountain climate proves insufficient. The reactive power and tissue change is much more active in the young and middle-aged than in the feeble and the old, and it is therefore the young and middle-aged, so long as their general condition is fairly good, who do best in a mountain climate.

British Medical Journal, London

2: 177-236 (July 31) 1926

Search for Ideal Antigen for Therapeutic Immunization. T. Horder and N. S. Ferry.—p. 177.
*Addisonian Anemia. A. T. Todd.—p. 180.
*Cardiac Symptoms of Pernicious Anemia: Pain. C. F. Coombs.—p. 185.
Food Deficiency Conditions in Relation to Preventable Illness. I. Scientific Point of View. S. J. Cowell.—p. 185.
Id. II. Clinical Point of View. H. M. M. Mackay.—p. 188.
Id. III. Tropical Medicine Point of View. P. W. Bassett-Smith.—p. 189.
Id. IV. Public Health Point of View. J. Wheatley.—p. 191.

Addisonian Anemia.—In the series of cases referred to by Todd, many mistaken diagnoses had been made by his predecessors, namely, neurasthenia, neuritis, chronic rheumatism, pelvic pressure neuritis, food poisoning, colitis and carcinoma of the liver, which are regarded as tragic mistakes, for the disease appears to be amenable to treatment if only the diagnosis is made early. Addison's anemia is a common disease, and through most of its course is not an anemia. Diagnosis is possible in the preanemic stage. In the early stages, treatment is highly successful but must be perpetual. In the later stages, exhaustion of the marrow, or aplasticity, supervenes, when treatment is without result. Hereditary transmission of the anemia, and of relative or complete achlorhydria, is so frequent that the relations of every patient should be examined for these defects.

Cardiac Pain and Pernicious Anemia.—Coombs contends that cardiac disease may be simulated by pernicious anemia in its early stages. In ten of his thirty-six cases the first diagnosis made was that of heart disease. It is true, however, that among the symptoms of myocardial disease sometimes exhibited by the patient with pernicious anemia cardiac

pain has a place; eight of Coombs' thirty-six patients complained of it. Necropsy done in one case showed that a cardiosclerosis was probably responsible for this pain.

Indian Medical Gazette, Calcutta

61: 321-372 (July) 1926

Prickly Heat. H. W. Acton.—p. 321.
Diagnosis of Typhoid-Like Fevers: Kala-Azar. G. Shanks and G. P. Khan.—p. 324.
Tuberculosis in Bengal. E. Muir.—p. 326.
Seven-Day Dengue in Luchnow. H. Stott and V. Mangalik.—p. 329.
Treatment of Benign Tertian Malaria with Cinchona Febrifuge. O. A. R. Berkeley-Hill.—p. 332.
"Bilivaccin-Cholera" Versus Commercial Cholera Vaccine. G. C. Maitra. —p. 334.
Oral Vaccination Against Bacillary Dysentery in Indian Jails. G. C. Maitra and J. B. Basu.—p. 335.
Epidemic of Food Poisoning in Punjab. G. Singh.—p. 336.
Antimalarial Operations on Eastern Bengal Railway—Khulna Branch. T. H. Bishop.—p. 337.
Use of Physostigmine in Eye Cases: Warning. H. Singh.—p. 344.
Spontaneous Expulsion of Foreign Body from Left Bronchus. K. N. Pradhan.—p. 345.
Intravenous Iodine in Puerperal Sepsis. S. R. Ingle.—p. 345.
Case of Double Hydrocele. R. V. Gajendragadkar.—p. 346.

Japanese Journal of Pharmacology, Kyoto

3: 1-177 (July 20) 1926

Effect of Divided Doses on Drug Activity. S. Uchida.—p. 1.
Pharmacologic Requirements for Chemical Detoxication of Glycocoll. S. Uchida.—p. 1.
Influence of Drugs on Contraction of Blood Vessels of Ear Induced by Electrical Stimulation of Auricularis Magnus Nerve. K. Ito.—p. 2.
Effect of Thyroid Activity on Atropine Destroying Power of Guinea-Pig's Blood. H. Kako.—p. 3.
Effect of Tension on Intestine, Uterus and Blood Vessels. C. Suzuki. —p. 4.
Antitoxic Function of Suprarenal. M. Fujii.—p. 4.
Effect of Drug Combinations on Isolated Uterus and Intestine of Guinea-Pig. S. Ishibashi.—p. 5.
Antagonistic Action of Strophanthin Against Cardiac Poisons: Their After-Effects. K. Hayashi.—p. 6.
Possibility of Reciprocal Conduction Between Auricle and Ventricle. S. Takagi.—p. 7.
Point of Action of Tyramine in Smooth Muscled Viscera and Vessels. H. Kako.—p. 7.

Journal of Hygiene, London

25: 119-224 (July) 1926

*Intestinal Flora. L. S. Dudgeon.—p. 119.
Relation Between Age and Virulence of Cultures of B. Aertrycke (Mutton). G. S. Wilson.—p. 142.
Proportion of Viable Bacilli in Agar Cultures of B. Aertrycke (Mutton). G. S. Wilson.—p. 150.
Meningitis Due to B. Enteritidis Gaertner. G. Stuart and K. S. Krikorian.—p. 160.
*Serologic Classification of Hemolytic Streptococci Obtained from Cases of Scarlet Fever. J. Smith.—p. 165.
*Immunologic Nature of Principle in Serum Responsible for Wassermann Reaction. T. J. Mackie and H. F. Watson.—p. 176.
Variation in Mortality from Cancer. M. Young.—p. 209.

Intestinal Flora.—Dudgeon states that, among healthy individuals, dietetic errors, excess of alcohol and active purgation may temporarily alter the bacterial content of the feces and may increase the numbers of bacteria present, even to the same extent as among patients suffering from lesions of the intestinal tract. Septic infections of the mouth, throat, respiratory and urinary tracts may cause abnormal bacteriologic conditions in the fecal flora. Spirochetes were found in the feces in 7 per cent of the cases and usually in large numbers. There was no evidence to show that they had produced a pathologic process in the bowel wall. Short coarse and long delicate spirochetes occurred. Experience has shown that it is necessary to examine the mouth and respiratory tract in such cases for spirochetal infection. One hundred and fifteen cultures of streptococci isolated from the feces in fifty cases of various kinds were investigated. Eighty-two out of the 115 cultures proved to be enterococci. Nineteen strains of long-chained streptococci and fourteen strains of medium and short-chained streptococci were isolated. Hemolytic colon bacilli occurred in the feces under varying conditions in 6 per cent of the cases. The mucus capsulatus group was present in 5.5 per cent of the cases, usually in patients suffering from an abnormal condition of the intestinal tract. Slow lactose fermenters were cultivated in 2 per cent of the cases. They have been found occasionally in the feces of patients suffering from acute urinary fever due to the same bacillus. *Staphylococcus aureus* and *S. albus* were present in about 35 per cent in adults. They occurred in large numbers in some cases of diarrhea, but especially in patients suffering from pulmonary infections. Diphtheria-like bacilli were isolated in 6 per cent of the cases. *B. welchii* was cultivated in 35 per cent of the cases. Dudgeon's observations with so-called intestinal antiseptics have led him to believe that on the whole they are devoid of bactericidal action on the intestinal flora of man.

Classification of Scarlet Fever Streptococci.—Hemolytic streptococci have been obtained by Smith from throat cultures in 92 per cent of cases of scarlet fever in the first two days of the disease. Strains from 210 cases were found to belong to two main serologic types, type I strains being obtained in 119 cases, and type II strains in fifty-seven cases. Strains obtained in cases occurring in members of the same family were found to be mainly of the same serologic type. Strains obtained in cases in small isolated outbreaks were found of the same serologic type.

Serology of Wassermann Reaction.—It is suggested by Mackie and Watson that the Wassermann (syphilis) reaction represents an increase of a "lipoidophile" antibody naturally present in the serum in minimal amount and in a masked state, which in syphilis is nonspecifically augmented in an analogous manner to the augmentation of the natural anti-sheep hemolysin by heterologous stimuli.

Journal of Physiology, London

61: 465-628 (Aug. 6) 1926

Impulses Produced by Sensory Nerve Endings. III. Touch and Pressure. E. D. Adrian and Y. Zotterman.—p. 465.
Influence of Calcium on Isometric Response of Frog's Heart. D. E. Deseō.—p. 484.
Secretin and Portal Circulation. J. Mellanby.—p. 489.
Elasticity of Skeletal Muscles. A. V. Hill.—p. 494.
Production of Sugar in Perfused Liver from Nonprotein Sources. J. H. Burn and H. P. Marks.—p. 497.
Peripheral Innervation of Vessels of External Ear of Rabbit. W. Feldberg.—p. 518.
Reaction Between Acetyl Choline and Muscle Cells. A. J. Clark.—p. 530.
Antagonism of Acetyl Choline by Atropine. A. J. Clark.—p. 547.
*Effect of Parathyroid Feeding on Thyroid. D. Woodman.—p. 557.
*Internal Secretions of Ovary. I. Estrus Producing Hormone. A. S. Parkes and C. W. Bellerby.—p. 562.
Influence of Vagus on Islets of Langerhans. II. Effect of Cutting Vagus on Sugar Tolerance. G. A. Clark.—p. 576.
Effect of Anoxemia on Heart and Circulation. A. Jarisch and H. Wastl. —p. 583.
Equation Expressing Excretion of Diuretic and Its Relation to Diffusion Processes. E. J. Conway and F. Kane.—p. 595.
*Relation Between Corpus Luteum and Mammary Gland. G. Drummond-Robinson and S. A. Asdell.—p. 608.
Coronary Circulation in Isolated Heart. M. Hammouda and R. Kinosita. —p. 615.

Effect on Thyroid of Feeding Parathyroid.—It is suggested by Woodman that the effect of parathyroid feeding on the thyroid is due to the antagonism of the two glands rather than to a replacement of the thyroid function by the administered parathyroid. The thyroid of rats fed on parathyroid presents an inactive appearance as shown by the increased amount of colloid present and the distention of the vesicles. Administration of parathyroid produces no marked structural change in the parathyroid.

Internal Secretion of Ovary.—Estrus producing extracts of ovaries have been obtained by Parkes and Bellerby of about the same order of activity as recorded by Allen and Doisy, and by Dodds, Dickens and Wright. Out of eight cases, the residual tissue had a greater activity than the corresponding liquor folliculi in five, while in the remaining three cases the liquor folliculi had the greater weight for weight activity. From this material there appears to be some correlation between the size of the follicles, and the relative activity of liquor folliculi and residual tissue.

Relation Between Corpus Luteum and Mammary Gland.—The influence of the corpus luteum on the mammary gland is shown by Drummond-Robinson and Asdell to be a variable one, thus providing a possible basis for the action of genetic

factors affecting milk yield. The theory that an inhibiting hormone prevents or causes a decline in milk secretion, until parturition occurs, appears to be unnecessary.

Kenya Medical Journal, Nairobi, East Africa

3: 91-120 (July) 1926

Mosquito Problem in Kenya. C. B. Symes.—p. 93.
Biochemistry: Relation to Clinical Medicine. F. C. Kelly.—p. 104.
Malarial Pneumonia. S. D. Karve.—p. 116.

Medical Journal of Australia, Sydney

2: 33-64 (July 10) 1926

Technical Defects of Gastrojejunostomy. H. C. R. Darling.—p. 33.
Treatment of Intestinal Parasites in Australia. G. M. Heydon.—p. 39.
Radiotherapy as Aid to Otorhinolaryngology. J. G. Edwards.—p. 44.
Experimental Radical Mastoidectomy. E. W. Gutteridge.—p. 47.
Intratracheal Anesthesia. A. B. K. Watkins.—p. 48.
Rupture of Bowel from Injury to Groin. S. Gibson.—p. 50.
Whole Blood from Convalescent Patient Used in Prophylaxis of Measles. J. Macnamara.—p. 50.
Acute Torsion of Spermatic Cord Associated with Congenital Inguinal Hernia in Infant. R. E. Rowland.—p. 51.

2: 65-94 (July 17) 1926

Disease and Individuality. F. W. Jones.—p. 65.
Significance of Failing Vision. J. R. Anderson.—p. 71.
*Criticism of Term Manic Depressive Insanity. W. A. T. Lind.—p. 75.
Some Early Printed Books: Their Authors and Printers. L. Cowlishaw.—p. 77.
Vaccine Treatment of Chronic Gonorrhea. F. Trinca and G. Foreman.—p. 81.
*Diabetic Tabes. J. Bostock.—p. 82.
*Case of Hydatid of Liver. H. R. Dew.—p. 83.
*Venesection in Pneumonia. C. D. Bateman.—p. 83.

Manic Depressive Insanity.—Lind cites data which he believes show that there is no justification for the theory that mania and melancholia are phases of a disease called manic depressive insanity. Just because the periodicity of circular insanity is not understood, it is not justifiable to explain the occurrence of the comparatively common mania and melancholia so as to make it coincide with the comparatively rare condition of circular insanity.

Diabetic Tabes.—Bostock's patient had both diabetes mellitus and tabes dorsalis but he was unable to determine which appeared first; whether the diabetes was pancreatic or mental. It is possible that the diabetes is due to a syphilitic pancreatitis.

Hydatid of Liver and Casoni Test.—Dew reports a case of simple hydatid cyst of the liver which gave no response to the Casoni test in the presence of a proved hydatid cyst. This has been recorded in only three definite cases in Dew's experience.

Venesection in Pneumonia.—Bateman's case illustrates the satisfactory result which venesection often gives in individuals of the plethoric, full-blooded type, suffering from lobar pneumonia, when they are finding the effects of the toxemia and the great effort required to maintain an efficient circulation to be rapidly overwhelming them.

Lancet, London

2: 161-214 (July 24) 1926

Medical Practitioner and Public. R. G. Hogarth.—p. 161.
Progress in Psychiatry. R. H. Cole.—p. 166.
*Epidemic Encephalitis of Severe Type. A. W. Fuller.—p. 172.
*Central Pontine Hemorrhage. A. M. Crawford.—p. 173.
Tuberculosis Verrucosa Treated by Ultraviolet Radiation and Associated with Unsuspected Trichinosis. M. Weinbren and H. K. Graham-Hodgson.—p. 174.
*Treatment of Varicose Veins by Injection. S. Alexander.—p. 176.

Severe Epidemic Encephalitis.—Fuller reports a case of epidemic encephalitis treated successfully by injections of electrocolloidal gold and silver. On the seventh day of the disease, there appeared little chance of recovery, but, knowing that electrocolloidal metals, particularly colloids of silver and a combination of silver and gold, had been employed successfully in the treatment of general infections, Fuller therefore decided to give an intravenous injection of 0.05 per cent suspension of gold-silver colloid. The first result was a return to consciousness within an hour and general improvement of symptoms. Two more injections were given on this and the following evening, intramuscularly. They were then suspended altogether for a few days, but the improvement persisted. On the sixteenth day, the silver-gold colloidal injections were resumed daily for four days, as the mental condition was not satisfactory and was not improving pari passu with the other symptoms. The result was marked. At the end of the sixth week, beyond general debility, there were no abnormal symptoms. Five months after the acute symptoms subsided, there were no abnormal physical or mental signs, and the patient resumed her usual social life.

Central Pontile Hemorrhage.—Sudden loss of consciousness, bilateral paralysis, contracted pupils and hyperpyrexia were the symptoms in the two cases of large central hemorrhage reported by Crawford. Both cases showed extreme hyperpyrexia immediately before death. In the first case, the necropsy showed a large central hemorrhage into the pons, bursting through on its inferior surface on the right side. A small amount of blood had effused into the basal cisternae. In the second case, the necropsy showed extensive hemorrhage involving the pons about its center. The hemorrhage had burst into the fourth ventricle, and blood was present in the whole ventricular system. The cerebral arteries were very brittle and showed signs of atheroma.

Treatment of Varicose Veins.—Alexander relates his experience with the use of a method of treatment devised by Sicard and Paraf of Paris, which consists of the intravenous injection of 20, 30 and 40 per cent solutions of sodium salicylate.

South African Medical Record, Cape Town

24: 289-312 (July 10) 1926

Version and Forceps in Midwifery Practice. R. Broom.—p. 290.
*Malaria Treatment of General Paralysis: Forty-Four Cases. A. Pijper and E. D. Russell.—p. 292.
*Unusual Case of Eclampsia. E. C. Crichton and S. Charnock.—p. 306.

Malaria Treatment of General Paralysis.—Pijper and Russell report the results obtained from the malaria treatment of forty-four cases of general paralysis. They injected from 0.5 to 20 cc. of blood subcutaneously, allowing each patient from twelve to sixteen paroxysms. A complete treatment lasted about a month, starting from the day of inoculation. If the fever did not die out spontaneously, it was stopped by an injection of neo-arsphenamine, 0.6 Gm. This always brought down the temperature to normal, and no further rise occurred. No parasites could be found in the circulation within thirty-six hours after this injection. All patients got this first injection whether the fever stopped simultaneously or not. A second injection was given a week later. Of the whole series (forty-four cases), eleven patients, or 25 per cent, showed a complete remission. Taking early cases only, there were 36 per cent of complete remissions. Taking "early expansive" cases only, there were 55 per cent complete remissions. Of the "late" cases, only 10.5 per cent reached a complete remission. Some mental improvement was obtained in 25 per cent of all cases, both early and late, apart from the 25 per cent of complete remissions. Physical improvement was noted in all cases, whether mentally improved or not, but physical improvement only, without mental benefit, was apparent in 25 per cent of the whole series.

Rapidly Fatal Eclampsia.—Crichton and Charnock relate the case of a woman who delivered herself at 9 p. m. of a healthy infant. Her previous history was not only negative but wholly favorable to a normal delivery. About four hours after delivery, she began to vomit, and a little later complained of severe pain between the shoulder blades, and to a slight extent in the epigastrium. Eighteen ounces (530 cc.) of urine was withdrawn; no albumin was present. The patient's mental condition was perfectly normal. A 8 a. m. a typical eclamptic convulsion occurred, and was followed by others at short intervals. Between 9 and 10 o'clock a catheter was again passed, and the urine that was withdrawn (1½ ounces, or 45 cc.) showed a fair quantity of albumin. The blood pressure was 110 mm. The routine treatment for eclampsia was carried out, a treatment that varies little from that employed in the Rotunda Hospital. The intervals between the fits gradually grew less, the duration of the convulsions more prolonged, and the coma deeper. The temperature rose higher and higher, and the woman died twenty-one hours after the first obvious manifestation of the condition.

Archives Méd.-Chir. de l'App. Respiratoire, Paris

1: 95-202 (April) 1926

*Interpretation of the Murmurs of Respiration. E. Sergent.—p. 95.
*Hydatid Cysts in Lungs. F. Dévé.—p. 125 and p. 141.
Present Status of Surgical Treatment of Hydatid Cysts in the Lungs. Jeanne.—p. 157.

Pathologic Breath Sounds.—The first half of Sergent's article was reviewed, July 24, p. 280. He reiterates that a pathologic murmur is not generated in the lesion which it reveals. The terms tubal murmur, pleural, cavernous or amphoric murmur have no absolute diagnostic meaning, but permit only indirect conclusions. They represent the result of the transmission of the normal laryngotracheal breath sounds. The area to which the murmur is conducted does not necessarily correspond to the area of the lesion; the transmission may be toward the other side of the body. The pitch, the quality and the loudness of the sound may be identical with widely different lesions, and identical lesions may induce widely varying physical signs.

Hydatid Cysts in the Lungs.—Dévé remarks that as 90 per cent of the cases terminate in recovery when the cyst perforates spontaneously into a bronchus, it is scarcely worth while to treat the few amenable cases by an artificial pneumothorax, except with recurring hemoptysis or chronic course. In his nineteen cases the lesion persisted in six for one to five years. He advises watchful waiting, under medical and radiologic control, if the cyst is small and deep in the hilum region, or if there has been a vomica.

Bulletin de l'Académie de Médecine, Paris

96: 1-34 (July 6) 1926

Immunity to Vaccination and Reaction to Revaccination. L. Camus.—p. 4.
Food Value of Bolted Wheat Flour. L. Lapicque.—p. 16.
Bone Dystrophia of the Occiput. Dejerine.—p. 21.
Duration of Vaccine Protection Against Smallpox. G. Lemaire.—p. 27.
*Action of Scarlet Fever Antitoxin. Mironesco and Farcas.—p. 30.

Action of Scarlet Fever Antitoxic Serums on Leukocytosis and Glycemia.—Mironesco and Farcas studied the action of Dick's and Dochez' antitoxic serums on the leukocytosis and glycemia in six patients with scarlet fever. There was evidence that the serums reduced the number of leukocytes and the amount of the sugar in the blood. The action of the Dochez serum appeared to be slower than that of the Dick serum, although the doses were higher (from 30 to 40 cc.).

Bulletin de la Soc. des Sciences Méd., Montpellier

7: 299-370 (May) 1926. Partial Index

*Transfusion of Convalescent's Blood in Smallpox. Ducamp et al.—p. 324.
*Blood Grouping After Transfusion. P. Falgairolle.—p. 332.
Convalescent's Blood in Measles and Chickenpox. Ducamp et al.—p. 362.

Convalescent's Blood in Treatment of Smallpox.—Ducamp, de Claret and Falgairolle became convinced by their experience in four cases that transfusion of convalescent's blood has a tonic and immunizing action in smallpox, aiding in blood production and checking the hemorrhagic tendency. Both the eruption and the general condition showed a decided change for the better. The eruption was accelerated and attenuated, warding off pitting. One patient with all the mucous membranes invaded by the eruption died, and in one obese woman the blood had to be injected subcutaneously as it proved impossible to reach a vein. In this case the benefit was comparatively slight. No symptoms suggesting intolerance were observed. By using blood from local convalescents, rather than commercial preparations, we get the benefit of the regional specific character.

Blood Grouping After Transfusion.—Falgairolle comments on the fixity of the blood group; transfusion has only a transient effect on it, if any at all.

Bulletins de la Société Médicale des Hôpitaux, Paris

50: 1263-1324 (July 16) 1926

*Skin Reactions from Emotions. C. Flandin.—p. 1264.
*Hemoglobinuria from Pneumonia in a Child. J. Comby.—p. 1267.
Traumatic Radicular Paralysis. Laignel-Lavastine and Valence.—p. 1269.
*Keloids with Exophthalmic Goiter. F. Widal et al.—p. 1273.
Neuritis from Tetanus Antiserum. P. Lechelle et al.—p. 1277.
Epilepsy from Bullet in Skull. Babonneix and Mornet.—p. 1282.
Syphilitic Aneurysm of the Aorta. Hudelo et al.—p. 1285.
*Transudation Test for Edema Tendency. N. Fiessinger et al.—p. 1290.
Resorption Speed of Induced Edema. P. Merklen et al.—p. 1296.
Abscess of the Spleen from Typhoid. P. Merklen et al.—p. 1302.
Right Pleurisy with Amebic Dysentery. Vialard and Darleguy.—p. 1310.
Granular Cells of Pulmonary Alveoli. L. Binet.—p. 1319.
Mediastinal Glandular Disease in Adults. Ameuille and Maldan.—p. 1322.

Skin Manifestations of Emotional Origin.—In one of the series of cases described by Flandin, a man, now 43, developed a generalized urticaria, at the age of 10, after a violent emotion. The eruption lasted for one day; it has not reappeared since. Another case of acute urticaria refers to a now prominent surgeon. As a young man he suffered from recurring generalized urticaria, with intense pruritus, at each of his competitive examinations. Two cases are reported in which the emotional urticaria was chronic; it did not disappear for four and fourteen months. In one young man, urticaria usually appeared after ingestion of fish or strawberries as well as after a lively emotion. In one woman, any emotional stress has induced eczema or an attack of asthma regularly since childhood. A certain professor suffers from eczema of the face and hands during his entire course of lectures. Cases have been observed in which an apparently cured psoriasis reappeared after strong emotion. Recurrences of herpes have also been observed after emotional stress, and always in the same location. A colloidoclastic shock cannot be the only causal factor. Certain changes in the vagosympathetic system, endocrine glands and liver, induced by the emotional nervous shock, may share in the production of these skin manifestations. May mentions a case in which rebellious urticaria subsided under the shock of a decision to operate on a fibroma.

Hemoglobinuria from Pneumonia in a Child.—A boy, aged 3, developed suddenly hematuria with high fever, preceded by vomiting. Examination of the urine revealed a large amount of hemoglobin, erythrocytes, polymorphonuclear leukocytes and a few casts. Pneumonia was suspected, but auscultation was negative until the fourth day. It appeared that within the three days the central pneumonia had spread to the right apex. The treatment included three hot baths daily, cold enemas followed by a suppository of quinine and pyramidon, milk diet, cotton-wool socks and mustard poultices. The aspect of the urine became normal in three days. The hemoglobinuria and associated lesions of the kidneys subsided completely, and convalescence was rapid. Comby is not aware of any other case of hemoglobinuria complicating pneumonia in a child.

Familial Keloids with Exophthalmic Goiter.—Apparently spontaneous keloids were observed by Widal, Hillemand and Laporte in a mother and daughter, aged 42 and 22, both with exophthalmic goiter. The older woman presented keloids on the trunk and thigh; the younger only on one shoulder. Numerous pigmented moles were scattered over the women's bodies. The exophthalmic goiter, preceding the keloid in the daughter, seems to suggest a possible connection between the two affections.

The Transudation Test for Tendency to Edema.—A line is drawn around the wrist with a dermographic pencil above the styloid process of the ulna. Then the hand is plunged vertically in a cylindric water-filled vessel, 20 cm. in diameter, until the water reaches the tracing on the wrist. Then the level of the water is marked on the vessel. The hand is withdrawn from the water and an elastic band is fastened on the wrist to arrest the venous circulation, for ten minutes, the hand lying in a horizontal position. The band is removed, and after five minutes the hand is immersed again in the water. The test is positive if the water rises now above the previously marked line on the vessel; otherwise it is negative. The difference between the two water levels is measured. The volume of the induced edema is evaluated in cubic centimeters, which show the transudation potency. The induced edema persists for twenty-five or thirty minutes. The test was negative in healthy persons. It was positive in nephritis, heart and liver disease, all accompanied by edema or ascites. A positive test became negative during a favorable course of the disease. Fiessinger, Sandor and Olivier conclude that

the endothelial membrane of the capillaries does not obey the laws of osmosis alone, but displays a vital resistance of its own. Lack of the resistance entails mechanical or dysorasic edema, associated in the latter with phenomena of increased affinity for water.

Paris Médical

61: 49-72 (July 17) 1926

Surgery in Children and Orthopedics in 1926. A. Mouchet and C. Roederer.—p. 49.
Talipes Cavus from Anomalies of Dura Mater. A. Bréchot.—p. 57.
Bony Reconstruction Following Reduction of a Dislocated Hip. J. Curtillet and R. Tillier.—p. 60.
Epigastric Hernias in Children. A. Martin.—p. 68.
Pathogenesis of Talalgia. C. Roederer.—p. 70.

61: 73-88 (July 24) 1926

Subcutaneous Tuberculosis and Sarcoid. H. Gougerot.—p. 73.
Diathermy in Treatment of Abdominal Pain. Fraikin.—p. 80.
Subtotal Gastrectomy. R. d. B. d'Ormond.—p. 83.
*Metritis from Intestinal Bacteria. L. Schil.—p. 85.

Chronic Metritis Caused by Intestinal Bacteria.—Schil found the colon bacillus and enterococcus, associated or not, in twenty-one of sixty-two patients with chronic metritis. It is probable that the bacteria invaded the genital organs directly from the pelvic segments of the intestine. Nineteen of these patients were treated with autovaccines prepared from the two micro-organisms in the same proportion in which their colonies appeared in the first culture. Each cubic centimeter contained a thousand million germs. A dose of 0.5 cc. was given in the first injection, 0.75 cc. in the second and 1 cc. in the third and successive injections. The injections were made subcutaneously three times a week; preceded by gynecologic massage to break down adhesions between the genital organs and the pelvic portion of the intestine, with the view of putting an end to the immigration of bacteria from the latter. Dressings impregnated with a bouillon vaccine, prepared from a total culture of the genital flora, were applied to the uterine cervix. The first series of injections covered two months; it was repeated at a month's interval. Most of the patients were cured after three series; the longest period of treatment covered a year. Sixteen of the patients were cured completely; the treatment failed in one instance only.

Presse Médicale, Paris

34: 897-912 (July 17) 1926

*Present Status of Vaccination Against Tuberculosis. A. Calmette.—p. 897.

34: 913-928 (July 21) 1926

*Intestinal Endoscopy. R. Bensaude.—p. 915.
*Radiology of the Gallbladder. E. A. Graham.—p. 916.

The Paris "Medical Days" Conference.—These numbers of the *Presse* contain the addresses delivered during the four "Medical Days" in Paris, including Calmette's detailed report on "Prophylactic Treatment of the New-Born with BCG Vaccine," and brief summaries of Bensaude's lecture on "Intestinal Endoscopy; Its Value in the Diagnosis and Treatment of Diseases of the Rectum and Colon," and of Graham's address on "Radiologic Exploration of the Gallbladder."

34: 929-944 (July 24) 1926

Melitococcus Spondylitis. H. Roger.—p. 929.
Histology and Physiology of the Lung. L. Binet.—p. 931.

34: 945-960 (July 28) 1926

*Insufflation of Fallopian Tubes. Laurentie and Moussalli.—p. 945.
*Apparatus for Transfusion of Blood. B. Desplas and E. Peyre.—p. 946.

Method for Testing Patency of the Fallopian Tubes.—Laurentie and Moussalli describe their portable apparatus which they call "tubopermeabilimeter." It is provided with a special device indicating exactly the penetration of the gas. They always use oxygen, and not more than 30 or 50 cc. for one insufflation, which should be repeated two or three times if the first test is negative. The insufflations may not only reveal the cause of the sterility but also help in its treatment. Three women, without children during two, four and fifteen years of married life, became pregnant immediately after the insufflations. The pregnancy was extrauterine in one instance. Insufflations may also be used after salpingostomy in order to maintain the patency of the tube. It was tried in a case of ascitic peritonitis and there was decided improvement after a single insufflation of 50 cc. of oxygen. In their 350 cases, the method induced transient disturbances, embolism with coma and hemiplegia, in only one; defective technic appeared to be responsible for this complication.

Apparatus for Transfusion of Blood.—Desplas and Peyre give an illustration of their apparatus which allows visual control of the mixing of the two bloods, expulsion of air bubbles, and regulation of the transfusion speed.

Revue de Chirurgie, Paris

63: 207-272, 1926

*Flap Autoplastic Surgery. P. Sebileau.—p. 207.
*Intraperitoneal Treatment for Closing Artificial Anus and Suppurating Fecal Fistulas. X. Delore et al.—p. 259.

Flap Autoplastic Operations.—Sebileau discusses the principles of restorative surgery, with nineteen illustrations. The wider the pedicle, the more certain the nourishment of the flap. He warns against long strips and pointed flaps, as they do not conform to the distribution of the arterial blood supply. Tissues on the median line are not well nourished, as anastomoses of arteries between the two sides of the body are few and small. A flap to cover a large defect in the median line region should have a nourishing pedicle on each side. Venous drainage is important to insure active circulation through the flap. It is better to err on the side of narrowness of the pedicle rather than to twist or pull it too much. Even the vicinity of cicatricial tissue is liable to impair the vitality of a flap, as also preceding roentgen or radium irradiation. Many of those disfigured by war wounds have required ten, twenty or thirty different operations before the reconstruction was satisfactory.

Treatment of Intestinal Fistulas.—Delore, Mallet-Guy and Vachey extol the advantages gained by cutting out the entire block of cicatricial tissue down to sound tissue in correction of a pyostercoral fistula or closing an artificial anus. The technic resembles that for excision of an adherent ulcer in the lesser curvature. They describe nineteen cases, supplementing their previous series of forty-seven. Intraperitoneal lateral enterorrhaphy answered every purpose except in one case in which enterectomy was required, and this much debilitated elderly patient died in coma in a few hours. All the others made a smooth recovery. In some cases the tract of the fistula extended for 4 cm. They insist on waiting several months before attempting radical operation for a fistula; this allows the mesentery to become flexible anew, and does away with the necessity for enterectomy.

Revue Française de Pédiatrie, Paris

2: 125-272 (June) 1926

*Pulmonary Infection in Early Childhood. L. Ribadeau-Dumas et al.—p. 125.
*Sunlight Deficiency and Infection. P. Woringer.—p. 161.
*Flatau's Phenomenon in Meningitis. M. Erlich.—p. 225.
Acidosis with Digestive Disturbances in Infants. P. Rohmer.—p. 230.

Infection of the Lung in Young Children.—Ribadeau-Dumas, Meyer, Debray and Tisserand specify the complications on the part of the lungs which are induced in the infant by a primary infection. Infection of the lung may occur at birth by penetration of septic fluids into the air passages. Later, different contagious diseases cause catarrh of the respiratory tract including the bronchi and the lungs. Among catarrhal affections, influenza, for instance, may induce acute edema of the lung. The infant may present a recurring form of bronchopneumonia, which leaves sequelae after recovery. The pulmonary lesions may be only an accessory manifestation of general infection, and scarcely to be revealed by auscultation. Another set of symptoms may prevail, suggesting the diagnosis of cholera infantum, chronic dyspepsia, intolerance to milk, marasmus, etc. This explains why the dyspepsia proves rebellious to any diet in these conditions, while a primary dyspepsia always yields to the proper diet. It is not digestive disturbances, but infection which is the most important factor in the mortality in the new-born.

Connection Between Sunlight and Infections.—"Heliophobic infections" are those, Woringer says, which occur chiefly in

the winter or spring as, for instance, tuberculosis, epidemic encephalitis, plague, smallpox and mumps. The intensive sun rays in the summer apparently enhance the defense of the organism, thus inducing a natural immunity by way of the skin. This function of the skin he calls "dermophylaxis." The latter exerts its effect on the whole of the organism and is effectual against various microbes. Eruptions, occurring with infectious diseases, testify to a hyperactivity of the skin with consecutive production of antibodies. The difference between this defense reaction of the skin and dermophylaxis consists in the fact that the former is specific. The two probably represent two forms of activity of an immunization apparatus situated in the skin. The action of derivative treatment is due to elaboration of antibodies from the hyperemia of the skin. The effect from diversion is rapid but transient, that from light is slow but continued. Therefore only chronic infections can benefit from light treatment, not the acute. Centers for prophylactic treatment should be organized in which children that are not getting enough sunlight might be exposed to the ultraviolet rays twice a week. This might result in the complete disappearance of rickets and spasmophilia, and decrease of "heliophobic" diseases and of the death rate.

Flatau's Phenomenon of the Neck and Eye.—Erlich recalls Flatau's phenomenon consisting in dilatation of the pupils when the head is bent forward. In positive cases, the rapid dilatation of the pupils is followed by an equally rapid contraction when the child's head is straightened. Flatau ascribes the phenomenon to pain caused by flexion of the cervical vertebrae. The sensory excitation is carried through the peripheral sensory nerves to the spinal cord, and by way of the medulla oblongata to the cervical sympathetic nerve and the pupil. Among 200 children examined the sign was positive only in meningitis. It appears early, preceding sometimes other symptoms of meningitis, especially in infants. In a case of cerebrospinal meningitis the phenomenon disappeared in convalescence simultaneously with the pathologic signs in the cerebrospinal fluid. In another case of epidemic meningitis, the phenomenon disappeared under improvement and reappeared with recurrences. The phenomenon was negative in all cases in which the diagnosis of meningitis had not been confirmed. The only affection in which the phenomenon is positive, although the meninges are intact, is cervical spondylitis. The phenomenon may serve for differentiation from diseases which at the onset resemble cerebrospinal meningitis.

Morgagni, Naples

68: 801-832 (June 27) 1926

Multiple Epithelial Tumors in Alimentary Canal. Badile.—p. 801.
*Alcohol Serologic Test for Syphilis. O. Sciarra.—p. 813.
*Local Vaccine Therapy. L. Maffeo.—p. 814.

The Alcohol Serologic Test for Syphilis.—Sciarra insists that the test he describes is based on new scientific principles, and utilizes elements in the serum which are not demonstrated by the Wassermann, Meinicke or other serologic tests. It is based on an assumed specific lipoidemia in syphilis, and on the fact that alcohol dissolves these lipoids. Added to the serum, it breaks up the flakes and clumps and the antigens and antibodies thus liberated are ready to respond with fixation of complement to hemolytic tests, applied for half an hour to two hours. He claims that this method is more sensitive with inactivated serum than the Wassermann; it coincides with the latter almost constantly when it is positive, while the reaction is negative in leprosy and certain other diseases in which the Wassermann test elicits a positive response. The same serum gives constantly the same response on repeating the tests. When positive it indicates active infection. When the Wassermann reaction is positive owing merely to an active antilipoid immunity or isolated persistence of antibodies, then the Sciarra is negative as might be anticipated from the mechanism of the reaction. When the test is made with active serum, it is a question whether and to what extent the greater sensitivity may not be at the expense of the specificity.

Local Vaccine Therapy.—Maffeo reports encouraging results from local application of a broth-vaccine in twenty-five cases of furunculosis. The results were less striking in acute purulent otitis media, as he applied it in seventeen cases.

Policlinico, Rome

33: 333-388 (July 1) 1926. Medical Section

Cystic Kidney. F. Majeron.—p. 333.
Blood Creatinin in Nephritis. R. Menasci.—p. 347.
*Salt and Nitrogen Excretion. B. Rapinesi.—p. 354.
*Carbon Disulphide Poisoning. M. Arezzi.—p. 362.

Salt and Nitrogen Excretion.—Rapinesi found that administration of salt increases the elimination of nitrogen in healthy subjects as well as in certain nephritis patients. In the latter cases, the nitrogen elimination increases sometimes several days after the administration of the salt.

Carbon Disulphide Poisoning.—Arezzi made an experimental study of poisoning with carbon disulphide in animals. In human subjects the symptoms are cerebral, hysterical and nervous. The first resemble an intoxication and the last constitute usually a paresis. Paralysis of accommodation indicates a grave chronic poisoning. The number of erythrocytes decreases, the leukocytes increase.

Riforma Medica, Naples

42: 625-648 (July 5) 1926

Aphasia. L. Bianchi.—p. 625.
*Blood Potassium in Cancer. R. Paolucci.—p. 626.
Paraepilepsy. E. Vergara.—p. 628.

Blood Potassium in Cancer.—Paolucci found on the average higher concentrations of potassium in the blood of cancer patients, but does not draw from this any diagnostic conclusions.

Studi Sassaresi, Sassari

4: 55-125, 1926. Partial Index

*Chronic Frontal Sinusitis. G. Dore.—p. 55.
The Blood in Experimental Avian Polyneuritis. La Torre.—p. 113.

Heliotherapy in Chronic Frontal Sinusitis.—Dore reports five cases of chronic suppurations in the accessory nasal cavities treated by systematic exposure of the region to direct sunlight. All were improved and two permanently cured. The pus became more fluid at once, and the sinus more effectually drained. With underlying constitutional disease, he prefers general heliotherapy.

Semana Médica, Buenos Aires

1: 1309-1372 (June 17) 1926

*Empyema Complicating Artificial Pneumothorax. C. Mainini.—p. 1309.
Osteitis Fibrosa of Ethmoid Bone. Segura and Zubizarreta.—p. 1321.
Implant Treatment of Ostearthritis. R. Solé.—p. 1328.
Is Dystrophy in Infants an Avitaminosis? E. Foster.—p. 1333.
Staining the Microfilaria. D. Brachetto-Brian.—p. 1333.
Hernia in Spigelius' Line. O. F. Mazzini.—p. 1334.
Pituitary Tumor in a Young Man. E. Gallardo.—p. 1339.
Acute Edema of Arm in Young Woman. Cruciani and Pecchio.—p. 1341.
The Hygiene of Swimming Pools. R. Palazzo.—p. 1344.

Treatment of Empyema with Artificial Pneumothorax.—Mainini states that in only 205 of a recent series of 359 cases of pulmonary tuberculosis were conditions favorable for artificial pneumothorax. In the patients thus treated, 46.87 per cent developed a serofibrinous effusion, 7.85 per cent an opalescent effusion, 5.85 per cent empyema, and 2.43 per cent empyema with fistula. In the empyema cases without fistula, remarkable benefit was realized by rinsing out the pleural cavity. Even in the most refractory cases, repetition of the lavage marked the beginning of the general improvement. He summarizes the twelve cases; seven patients in this group have been dismissed as clinically cured, the others are still under treatment. This comprises evacuation of the pus, rinsing with an antiseptic, and insufflation of air.

Archiv für exp. Pathologie und Pharmak., Leipzig

113: 129-256 (June) 1926. Partial Index

*Chronic Alcohol Poisoning. E. and I. Keeser.—p. 188.
Cause of the Antiseptic Action of Mercury Salts. E. Keeser.—p. 224.

Chronic Alcohol Poisoning.—The Keesers studied the blood chemistry of fifty-one persons, some with chronic alcohol poisoning, others with delirium tremens. The results showed —as others have found—changes in the fat metabolism and an

impoverishment of the organism as regards phosphates, soaps and cholesterol. Indican was much increased in the blood, showing destruction of tryptophan, since it is a decomposition product of that substance. Acetone bodies were increased in the blood. These changes may have a special influence on the ferments, thus disturbing the normal constructive and destructive metabolism of the proteins.

114: 1-124 (July) 1926. Partial Index

*Experimental Research on Tin Poisoning. H. Handovsky.—p. 39.

Poisoning with Tin.—Handovsky studies the effect of aromatic and aliphatic compounds of tin in the acute and chronic poisoning of animals. Acute poisoning shows an effect typical for heavy metals. In chronic poisoning there is a diuretic effect. Heavy metals with low atomic weight seem to be eliminated chiefly in the feces; with high atomic weight chiefly in the urine.

Archiv für klinische Chirurgie, Berlin

141: 215-388 (June 10) 1926

Diverticular Ileus. F. Kaspar.—p. 215.
Sliding Hernias of the Large Intestine. A. Jacobson.—p. 286.
*The Reshaping of Transplanted Bone. Guleke.—p. 325.
*Ether Treatment of Peritonitis. G. Wolfsohn.—p. 345.
Surgical Treatment of Lymphangiomas. B. Brandsburg.—p. 377.

Reshaping of Transplanted Bone.—As regards the final shape of the bone after transplantation, the roentgenographic evidence in fifteen forearm cases, studied by Guleke five to ten years after successful operation for gunshot pseudarthrosis or bony defect, was that the reshaping of the transplant to correspond with the normal shape of the bone replaced depended on the functional importance of the bony segment in question. Thus the reshaping of transplants at the lower end of the radius and at the upper end of the ulna was much more extensive and complete than was that of transplants at the opposite ends or in the middle of these bones.

Ether Treatment of Peritonitis.—The technic which Wolfsohn uses at present, worked out from clinical observations and animal experiments, and from which he has experienced no bad effects, is as follows: At the end of the laparotomy the abdominal cavity is washed out with salt solution, then, the ether anesthetic being stopped and the pelvis lowered to the horizontal position, the abdominal wound is held wide open and 30 to 50 cc. of ether is poured in. He waits about one minute for the superfluous ether to evaporate. Finally the cavity is again washed out with 100 cc. of salt solution. The abdomen is closed with or without drainage. He believes that the fatalities from adhesion ileus, shock and the toxic effects of the ether occurred chiefly because too much ether was used, or because the superfluous ether was not allowed to evaporate before the cavity was closed. The ether should always be poured into the cavity through the wide open abdominal wound, never through a funnel after partial closure of the wound. He does not believe that the prophylactic use of ether is justified.

Archiv für path. Anatomie und Physiologie, Berlin

259: 521-817 (March 3) 1926. Partial Index

The Media of the Arteries in Gangrene and Diabetes. H. Borchardt.—p. 521.
Hypertrophy of the Thymus and Cyst Formation. K. Löwenthal.—p. 531.
Essential Hypertension. H. Borchardt.—p. 549.
Malignant Growths in the Kidney. Ehrlich and Frischmann.—p. 565.
*Spurious Hermaphrodism of Suprarenal Origin. E. Feldmann.—p. 608
*Hitherto Undescribed Corpuscles in Bone Marrow A. Plehn.—p. 628.
Spleen Incrustations. W. Rotter.—p. 631.
*Pathologic Changes in Scarlet Fever. N. Sysak.—p. 647.
Congenital Stenosis of Esophagus and Pylorus. A. Krokiewicz.—p. 761.
Teratoma in the Brain. G. L. Derman.—p. 767.
Venereal Granuloma. M. Goldzieher and S. M. Peck.—p. 795.

Spurious Hermaphrodism of Suprarenal Origin.—Feldmann describes the case of a boy, aged 7, who succumbed to measles and pneumonia. The external genitals were male and well developed, with profuse growth of pubic hair, but the internal organs were female. Necropsy confirmed the pseudarrhenia—sham masculinity—of a type only thrice before described in the literature. The suprarenals were considerably enlarged. The penis and prostate were of normal appearance. The scrotum did not contain testicles, but a vagina terminated in the scrotum. The uterus, tubes and ovaries were developed corresponding to the age. Histologic examination showed hyperplasia of the suprarenal cortex, with typical prostate and ovaries. This case and the others described in the literature seem to be traceable to early intra-uterine hyperfunction of the suprarenals.

Hitherto Undescribed Corpuscles in the Bone Marrow.—Plehn found in the bone marow of malaria-treated patients with general paralysis some corpuscles not previously described in the literature. The corpuscles were studied in histologic preparations made immediately after the death of the patient. They are delicate corpuscles from a third to twice the size of a red corpuscle. They stained gray blue with the Giemsa (even when the erythrocytes were red) with red particles and short splinters in the center, which may have represented chromatin. These corpuscles were always found in the fresh bone marrow of malaria-treated patients and in one case in general paralysis before the malaria treatment. They were also found in the bone marrow of a man who had never had syphilis or malaria. Plehn suggests that these new corpuscles might be called P corpuscles after the first letter of his name. A colored illustration shows two specimens.

Pathologic Changes in Scarlet Fever.—During the last epidemics in Ukraine, Sysak studied the pathologic anatomic changes of scarlet fever in thirty-two cases. Bacteriologic examination of the blood was made in sixty-four scarlet-fever cadavers according to the method of Lenhartz. Only in three cases were the results negative. The streptococci showed a great variety in growth, but not much difference in the fermentation of carbohydrates. Streptococci were present in the blood (90 per cent) three days after infection. Histologic examination showed an infiltration of fat (phosphatids and fatty acids) in the heart, tongue, pancreas and spleen, but a decrease of lipoids in the suprarenals. Fat was found in the liver at the periphery and the center; in the kidneys only in small amounts. Pigments containing iron were increased in the spleen but rare in the liver. Necrosis of the liver was observed in four cases and of the kidneys in one case. Interstitial nephritis in scarlet fever is a part of the general pathologic processes, which are demonstrated in an infiltration of lymphocytes, plasma cells, partly eosinophils and basophils, in the liver, heart, suprarenals and tongue, but also in the submucosa of the intestine and in the thyroid.

Biochemische Zeitschrift, Berlin

165: 1-246 (Nov. 23) 1925. Partial Index

*Ions, Liver Function and Sugar Metabolism. N. Heianzan.—p. 33, p. 37 and p. 81.
Glycolytic Effect of Embryonic Tissue. E. Negelein.—p. 122.

Ions, Liver Function and Sugar Metabolism.—Heianzan studied the effect of ions on dogs with a gallbladder fistula. The capacity of the liver to excrete bile was increased by potassium chloride, and excretion of injected dyes was hastened. Calcium chloride had an opposite effect. Calcium and sodium increased the blood sugar in normal animals. Potassium and magnesium did not show any effect. In animals with alimentary hyperglycemia, calcium increased, sodium, magnesium and potassium decreased the blood sugar. The liver is necessary for an ion effect on the blood sugar, but not the liver glycogen.

169: 1-244 (Feb. 18) 1926. Partial Index

Antagonistic Action of Insulin and Pituitary Hormone on Water Metabolism. D. Adlersberg.—p. 129.
*Nitrogen Determination in Blood and Urine. R. Foit.—p. 161.

Nitrogen Determination in Blood and Urine.—Foit recommends his method as more reliable than the micro-Kjeldahl. In determination of nitrogen in urine and blood he digests the nitrogenous substances with 30 per cent peroxide and a small amount of sulphuric acid, without a catalyzer. The ammonium sulphate is then treated with hypobromite solution, and the resulting free nitrogen determined volumetrically.

174: 1-256 (July 6) 1926. Partial Index

*Phosphorus Determination. H. Kleinmann.—p. 43.
Importance of Fat for Thyroid Action on the Metabolism. I. Abelin et al.—p. 232.

Phosphorus Determination.—Kleinmann has modified his nephelometric method for determination of phosphoric acid (1919). With purified reagents he is able to make readings on 0.005 mg. of phosphorus pentoxide with an error of ±2 per cent.

Deutsches Archiv für klinische Medizin, Leipzig

151: 257-380 (June) 1926

Diameter of Erythrocytes. E. Wiechmann and A. Schürmeyer.—p. 257.
*Blood Pressure and Circulation. G. Ganter.—p. 266.
Histology of Cutis Marmorata. W. Scharpff.—p. 275.
*Blood Proteins in Recurrens. E. Wiechmann and H. Horster.—p. 285.
Achylia. B. Stuber and A. Nathansohn.—p. 293.
*Blood Transfusion. P. Görl.—p. 311.
Tabes Bandage. H. Watermann.—p. 318.
*Alkaptonuria. G. Katsch and G. Stern.—p. 329.
*Metabolism of Glycocoll. E. Wiechmann and M. Dominick.—p. 350.
Acute Liver Cirrhoses. F. Reiche.—p. 361.

Blood Pressure and Circulation.—Ganter points out that an increase in the blood pressure is due to a disproportion between the blood output from the heart and the peripheral resistance. Although the latter is very important, there is no reason to forget the significance of an increased blood output —for instance, in the so-called red (plethoric) hypertension.

Blood Proteins in Recurrens.—Wiechmann and Horster studied the blood of rats infected with recurrens spirochetes. They confirmed the agglutination of the latter shortly before the crisis, but observed at the same time an agglutination of the erythrocytes. Since both the spirochetes and the erythrocytes are negatively charged, a shifting in the albumin-globulin ratio of the serum might be responsible for the agglutination of both. They found in infected rats a steady decrease in the blood albumin and—except for the first day—an increase in globulins. Yet the maximum of the latter precedes the agglutination by eight to twelve hours.

Blood Transfusion.—Görl denies the value of Ashby's agglutination method for determination of the viability of transfused erythrocytes. Differences in shaking of the test mixture resulted in extreme variations in the number of nonagglutinated cells (about 1:19).

Alkaptonuria.—Katch had observed a disappearance of alkaptonuria during acetonemia. He made, with Stern, some further investigations, especially on the action of the serum from such patients. Gross had observed that homogentisic acid disappears when added to a normal serum, but not to a serum from an alkaptonuria patient, and had concluded from this that the patient's serum lacks a normal ferment. The authors confirm this observation, but not the explanation: homogentisic acid is oxidized in the presence of air, even in an acid medium, yielding so far unknown colorless products. The serum in alkaptonuria contains a nonprotein substance which inhibits this oxidation. The favorable action of acidosis in the alkaptonuria may be due either to a binding of this substance or to a different way of cleavage of aromatic amino-acids, avoiding hydrochinon and yielding pyrocatechin or some other compound, branching off before formation of chinon.

Metabolism of Glycocoll. — Wiechmann and Dominick injected glycocoll intravenously. The amino-acid content of the serum returns to the previous level much more rapidly in healthy subjects than in diabetes. Preliminary injection of insulin causes a faster return to normal in diabetes than in healthy subjects without insulin.

Deutsche medizinische Wochenschrift, Berlin

52: 1155-1198 (July 9) 1926

Pertubation and Uterography. M. Henkel.—p. 1155.
Standards for Roentgen Rays. L. Grebe and H. Martius.—p. 1156.
Blood Circulation. J. Plesch.—p. 1159.
Permeability of Meninges. A. Wittgenstein and H. A. Krebs.—p. 1161.
*Insulin Sensitiveness in Tuberculosis. R. Ahlenstiel.—p. 1163.
Anesthesia and Tuberculin Test. H. Biberstein and J. A. de Moraes Cardoso.—p. 1165.
Primary Tuberculosis of the Stomach. J. Severin.—p. 1168.
*Turbidity Reaction. E. Meinicke.—p. 1170.
*Carbon-Nitrogen Ratio After Iodine. M. Watanabe.—p. 1172.
Concentrated Insulin. P. Mabler.—p. 1172.
*Vacuum Treatment of Furuncle. Düker.—p. 1173.
Credé's Prevention of Ophthalmia Neonatorum. Von Hahn.—p. 1174.
Venereal Diseases in Children. H. Davidsohn.—p. 1174. C'cn.
Technical Novelties. M. Schütz.—p. 1176.
Rest in Health Resorts. J. Schwalbe.—p. 1177.

Insulin Sensitiveness in Tuberculous Patients.—Ahlenstiel found a lower insulin sensitiveness in active tuberculosis than in other infections or in inactive pulmonary tuberculosis.

Turbidity Reaction.—Meinicke publishes details of his test, especially on the addition of benzoic acid and of a primary alcoholic heart extract. He quotes Kolle on the frequency of symptom-free syphilis, and pleads for routine tests.

Carbon-Nitrogen Ratio After Iodine.—Watanabe administered large doses of sodium iodide (1.3 Gm. per kilogram of body weight) to rabbits. This caused a decrease of the carbon-nitrogen ratio of their urine, due to an increased elimination of nitrogen.

Vacuum Treatment of Furuncle.—Düker had good results with Kuhn's method. The vacuum used is high (½-1 atmosphere) and causes hemorrhages in and around the furuncle. It should be applied for half an hour. Too rapid aspiration is painful.

Jahrbuch für Kinderheilkunde, Berlin

113: 1-118 (June) 1926

*Chronic Peritonitis in Children. E. Rominger.—p. 1.
*Human Milk and Bifidus Flora. H. Schönfeld.—p. 19.
Carbohydrate Metabolism in Rickets and Spasmophilia. A. Adam.—p. 61.
*Eye-Neck Reflex. A. Peiper.—p. 87.
Czerny's Phenomenon in Chorea. O. Göttche.—p. 90.
"Blood Injections in Erythrodermia." E. Schiff.—p. 96.

Chronic Peritonitis in Children.—Rominger attributes the benign diffuse enlargement of the abdomen in children to a chronic fibrous peritonitis.

Human Milk and Bifidus Flora.—Schönfeld investigated the constituents of human milk in their influence on the normal *Bacillus bifidus* flora of the intestines in infants. He concludes that the protein-free fraction of the whey of human milk contains a specific factor favorable to the development of these germs. This factor is not identical with any chemically known constituent of human milk. It is absent in cow's milk.

Eye-Neck Reflex.—Peiper describes a tonic reflex in newborn infants and especially in those born before term. It consists in a contraction of the muscles of the neck when the eyes are suddenly exposed to light.

Klinische Wochenschrift, Berlin

5: 1257-1304 (July 9) 1926

Formation of Calculi. M. Spiegel-Adolf.—p. 1257.
*Bilirubin Formation. L. Aschoff.—p. 1260.
Sanocrysin Treatment. G. Pfeffer.—p. 1261.
Gas Metabolism. A. Lublin.—p. 1263.
Sex Cycle and Organ Extracts. B. P. Wiesner.—p. 1269.
*Lactacidemia. B. Mendel and M. Bauch.—p. 1272.
Vegetable Broth for Infants. F. Bruchmüller and E. Müller.—p. 1273.
Cystopyelitis in Children. F. Trendtel.—p. 1275.
"Duodenal Reflux." F. Rothschild.—p. 1279.
"Cultivation of Cannabis Indica." T. Sabalitschka.—p. 1279. Reply. E. Joël.—p. 1280.
*Toxicity of Shaken Serum. H. Dold.—p. 1281.
*Pilocarpine and Thyroid. E. Herzfeld and E. Mosler.—p. 1281.
Hypofunction of Suprarenals. A. Hansen.—p 1282
Causal Therapy of Bronchial Asthma. A. Muszkat.—p. 1283.
Nutritional and Living Standards. Von Tyszka.—p. 1285. C'td.

Bilirubin Formation.—Aschoff finds that the recent investigations of Minkowski's school do not prove the predominant rôle of the mammalian liver in bilirubin formation. Mann and Magath's dogs had a grave icterus after removal of the liver and injection of hemoglobin. The absence of jaundice after poisoning with toluylendiamin or phenylhydrazine in hepatectomized dogs might be due to the injections of dextrose which are necessary to keep the dogs alive.

Lactacidemia. — Mendel and Bauch found no increase in lactic acid concentration of the blood in resting dogs after intravenous injections of 0.2 Gm. of neutralized lactic acid per minute. This rapid disappearance accounts for the fact that no increase in lactic acid had been found in cancer. The cancer would have to weigh about one-twentieth of the weight of the body to produce lactic acid at a rate superior to that used by the authors in this research.

Toxicity of Shaken Serum.—Dold shook fresh guinea-pig serum for two hours. On injecting into other guinea-pigs

4-5 cc. of such a slightly turbid serum, he obtained phenomena of shock in a large proportion of the animals.

Pilocarpine and Electrocardiogram.—Herzfeld and Mosler found no change in heart reaction to pilocarpine in thyroprival animals nor in those which were being treated with thyroid extracts.

Medizinische Klinik, Berlin

22: 1097-1132 (July 16) 1926

Migraine. F. L. Bonn.—p. 1097.
*Cardiac Asthma. F. Brunn.—p. 1102.
Reclining Chairs. C Hirsch.—p. 1105.
*Etiology of Scarlet Fever. K. Kundratitz.—p. 1105.
Twilight Condition in Labor. H. Eufinger.—p. 1107.
Coins in Esophagus. E. König.—p. 1108.
Late Syphilis of Joints. B. Grünzweig.—p. 1109.
Early Treatment of Eclampsia. E. Becker.—p. 1112
Vaginal Tumor. E. v. Hoor.—p. 1112.
Distribution Leukocytosis. A. J. Mirkin and L. M. Rachlin.—p. 1113.
Intracutaneous Epinephrine Injection. M. Lévai.—p. 1114. C'cn.
Obstetrics and Gynecology. W. Liepmann and W. Brusten.—p. 1119.

Cardiac Asthma.—Brunn emphasizes the significance of the water metabolism in pathogenesis of cardiac asthma. An attack stops after injection of a pituitary extract which prevents the flow of fluid from the tissues into the blood. The attack may be prevented by dry diet or by administration of mercurial diuretics.

Etiology of Scarlet Fever.—Kundratitz immunized children with toxins obtained from scarlet fever streptococci and streptococci of other sources. The children injected with either one of his scarlet fever toxins became immune to the other, but not to the toxins of different origin. He produced in children all the symptoms of scarlet fever except the tonsillitis by injections of the Dick toxin. The resemblance was so striking that an experienced pediatrician who did not know about the injection ordered such a child to be transferred to the scarlet fever station. Injection of convalescent serum prevented this eruption. He admits now that the symptoms of scarlet fever are caused by the streptococcus toxin.

Mitteil. ueber allg. Pathol. u. path. Anat., Japan

3: 1-193 (June 4) 1926

*Morphology and Biology of the Pancreas. S. Ukai.—p. 1, p. 27, p. 65, p. 89 and p. 173.

Morphology and Biology of the Pancreas.—In the five studies here presented, Ukai treats of the finer structure of the pancreas in various animals, of the regenerative phenomena after experimental ligation and division of the pancreatic duct and after cauterization and wounding, and describes his transplantation experiments in rabbits. Finally he compares the results of his own investigations with the literature as regards the islands of Langerhans, the capsule, mitosis and transitions between island cells and acinus cells. He does not believe that such transitions occur under either physiologic or experimental pathologic conditions. The article is elaborately illustrated with colored plates.

Münchener medizinische Wochenschrift, Munich

73: 1143-1182 (July 9) 1926

*Hemato-Encephalic Barrier. G. Behnsen.—p. 1143.
*Nitrogen Metabolism in Fever. W. Birk.—p. 1147.
Subarachnoidal Block. J. Zange.—p. 1150.
Schizophrenic Reaction. J. Lange.—p. 1152.
*Auto-Observation of Shock. H. Scheel.—p. 1155.
Physical Education of Children. F. Hamburger.—p. 1156.
Wassermann and Dold Tests. H. Dold and H. Gross.—p. 1157.
Sedimentation Test. G. H. Schneider.—p. 1159.
Calcium Chloride plus Arsphenamine. Mönch.—p. 1160.
Medical Philosophy. A. Bier.—p. 1161. C'cn.
Johannes Müller as Critic. W. Haberling.—p. 1166.

Hemato-Encephalic Barrier in Young Animals.—Behnsen injected young mice with trypan blue and observed much more pronounced deposits of it in the central nervous system than Goldmann had described in adult animals. He concludes that the hemato-encephalic barrier is more permeable in young mice. In addition to the staining of the tuber, which occurs even in the old animals, the whole brain—except the cortex—accepted the dye. It seems that this is analogous to Schmorl's observation on the penetration of bilirubin into the brain in jaundice of the new-born. The trypan blue seems to penetrate locally through the blood vessels—not through the choroid plexus.

Nitrogen Loss in Fever.—Birk studied the nitrogen metabolism in children during the incubation and course of various infectious diseases. He found not only the usual negative nitrogen balance, but also occasionally in the incubation period a considerable retention of nitrogen. He concludes that the loss of nitrogen in fever is due partly to inanition, partly to a toxic irritation of the cells of the sympathetic brain center for protein metabolism. He does not believe in a direct toxogenic cleavage of proteins of the organs.

Auto-Observation of Shock.—Scheel recalls his grave war injury (jaw, tongue, arm, sacrum and rectum) by splinters of a shell. He broke down immediately and was unable to move. Although he did not lose consciousness, he could not for about two and a half hours localize the wounds, nor realize the danger surrounding him. Extraction of a splinter from his jaw was painless. He regards this as an instance of shock induced from the periphery (sensory nerves), and points out that it occurred so rapidly that it seems impossible to assume a toxic origin.

Strahlentherapie, Berlin

22: 579-784, 1926. Partial Index

*Prevention of Irradiation Dermatitis. S. Rothman.—p. 729.
Effect of Roentgen Rays on Foods. A. Czepa.—p. 764.

Procaine Checks Dermatitis and Pigmentation from Light.—Rothman shows that skin inflammation and pigmentation from therapeutic irradiation can be prevented by previous intracutaneous injection of procaine. Procaine seems to have a faculty of selective absorption of ultraviolet rays. The wheal induced by intracutaneous injection of a 1 per cent solution of procaine showed a normal area in the midst of the light dermatitis and pigmentation induced by a strong erythema dose of mercury lamp rays.

Wiener klinische Wochenschrift, Vienna

39: 805-832 (July 8) 1926

*Qualitative Diagnosis of Tuberculosis. W. Neumann.—p. 805.
Congenital Syphilis. H. Orel and H. Wimberger.—p. 808. C'td.
Gangrenous Balanitis. G. Scherber.—p. 812.
*Merbaphen (Novasurol) by Mouth. P. Saxl.—p. 816.
*Insulin by Mouth. F. Lasch and S. Brügel.—p. 817.
*Deaths from Diphtheria Immunization. R. Fischl.—p. 818.
Sedimentation Test. H. Mayrhofer.—p. 819. C'cn.
Pharmacognosy. R. Wasicky.—p. 821.
Balneotherapy in Tuberculosis. W. Spitzmüller.—p. 821.
Abdominal Syphilis. H. Schlesinger. Supplement.—pp. 1-11.

Qualitative Diagnosis of Tuberculosis.—Neumann pleads for qualitative diagnosis in pulmonary tuberculosis. It is important in prognosis as well as in treatment. Patients with the fibrocaseous type may gain in weight, look well, tolerate large doses of tuberculin, and die, unless a preumothorax is instituted early. The diagnosis is based on a history of attacks of high fever with general symptoms resembling influenza and followed by remissions. The oldest lesion is in the apex, and the cavities are localized next to the fourth and fifth thoracic vertebrae. The infraclavicular fossa is the point of predilection in the tuberculosis of puberty (Ranke's primary complex?) and in the ulcerofibrous form, which stands the fever subjectively extremely well (contrary to the fibrocaseous form) and is benefited by tuberculin. An increase in weight signifies here almost a cure. Repeated pleurisy indicates repeated infection. Careful investigation may reveal an unsuspected source of infection in the family. Rest and tuberculin are advisable. Many women died because a gain in weight in a fibrocaseous form was considered an evidence of good prognosis and contraindication for abortion.

Merbaphen by Mouth.—Saxl had good results with administration of merbaphen (novasurol) by mouth in patients who were recovering from a cardiac edema. He administers 0.2 Gm. daily in a hardened gelatin capsule after breakfast. Insufficiency of kidneys, excessive hypertension, anemia and diarrhea are contraindications.

Insulin plus Saponin by Mouth.—Lasch and Brügel added 10-20 insulin units to a solution of 0.5 Gm. of saponin in

20-30 cc. of normal saline. Administration of this mixture by mouth was followed in man and animals by a decrease in blood sugar.

Deaths from Diphtheria Immunization.—Fischl recalls experiments made by himself and Wunschheim in 1895. They had inconstant results with neutralization of diphtheria antitoxin in vitro. He attributes this to a dissociation of toxin and antitoxin.

Zeitschrift für Geb. und Gynäkologie, Stuttgart

90: 1-246 (June 26) 1926. Partial Index

Dystocia from Circular Contracture of the Uterus. K. Fink.—p. 1.
*Asthma in Relation to Female Sexual Sphere. H. Offergeld.—p. 22.
Relations Between Pregnancy and the Metabolism. O. L. E. de Raadt.—p. 63.
The Glucose Content of Blood and Spinal Fluid in Pregnancy. K. Hellmuth.—p. 89.
Case of Fetal Arrhythmia. T. Antoine.—p. 112.

Asthma in Relation to Female Sexual Sphere.—Offergeld reports a case which testifies to the unmistakable influence of the internal secretions of the female sex organs on the development and course of the asthma neurosis; also that the asthma can modify the functioning of the genital glands to a certain extent. Tentative organotherapy in the patient, aged 16, showed the decided influence of corpus luteum extract. Menstruation became regular, there was no further dysmenorrhea, and the menstrual periods passed without the usual recurring asthma. The occasional intermenstrual attacks did not seem to be influenced by it. He admits the advisability of interrupting the pregnancy when severe asthma develops in a pregnant woman. In eleven such cases on record, evacuation of the uterus in the first months of the pregnancy always improved conditions. Abortion is liable to occur spontaneously and stillbirths (73 per cent), and the danger of injury to the lungs or heart from the neurosis is a further argument in favor of interrupting the pregnancy early. In the second half, the fetus is more resistant and the asthma is usually less severe. He adds that asthma in pregnancy is the algebraic sum of disturbances in metabolism of salts, in isotonus, in the endocrine and nervous systems, and their interlocking derangement. An excess of potassium ions may cooperate, besides certain chemical compounds. The fetus succumbs to the abnormal environment. Suggestion, hypnosis, mustard baths, hot foot baths are useful, also breathing exercises, the Kuhn mask, massage of the chest, and possibly atropine or epinephrine.

Zeitschrift für die ges. exp. Medizin, Berlin

51: 1-332 (June 30) 1926. Partial Index

*Permeability of the Capillaries. F. Hoff and W. Leuwer.—p. 1.
Elastic Properties of Aorta Wall. E. Moissejeff.—p. 15.
Sedimentation Test and Blood Proteins in Malaria. Radosavljević and Ristić.—p. 48.
*Influence of Opium on Stomach Functions. L. Alius.—p. 91.
*Effect of Bromides and Salt on Nervous System. W. Gärtner.—p. 98.
Physiology of the Capillaries in Man. H. Heimberger.—p. 112.
Influence of Pituitary Extract on Chemistry of the Stomach. A. Elkeles.—p. 147.
Nervous Regulation of Breathing in Asthma. E. Bass.—p. 158 and p. 183.
The Reversion of Hemolysis. Starlinger and Strasser.—p. 198.
Galvanic Irritability of Neuromuscular Apparatus. Golant-Ratner.—p. 223.
Decomposition of Aceto-Acetic Acid by Colon Bacillus. S. Weiss and J. Pogány.—p. 261.
Influence of Bitters on Gastric Secretion. P. Mahler.—p. 267.
*Narcosis and Thyroid Treated Animals. E. Herzfeld.—p. 278.
Female Sexual Hormone: Titration by Rut Reaction. S. Loewe and F. Lange.—p. 284.

Experiments on the Permeability of the Capillaries.—Hoff and Leuwer injected in seven series of experiments freshly prepared 1 per cent solution of congo red intravenously in normal subjects and persons with skin infections. The amount injected was 2 cc. per 10 Kg. of body weight. It was found that the dye only slightly penetrated normal vessels, but in furunculosis a strong coloring was observed depending on penetration of the congo red into the infected parts of the skin. Herewith is demonstrated the higher permeability of vessels of infected regions. Observations on the intravenously injected congo red streaming into areas intracutaneously injected with chlorides of sodium, potassium, calcium and magnesium showed that the penetration of the dye through the capillary vessels depends on osmotic pressure and the influence of ions.

Influence of Opium Preparations on the Motor and Secretory Functions of the Stomach.—Alius studied in four series of experiments the influence on the human stomach of tincture of opium, opium suppositories and a mixture of opium alkaloids (subcutaneous injection). Control experiments were also made. The fasting content was aspirated with a duodenal tube and 400 cc. of Maggi's broth extract, colored with caramel, was introduced. The tincture of opium was taken in the broth, the opium suppositories at different times before the test, and the subcutaneous injection given before, during and after the introduction of the broth. About 8 cc. of fluid was aspirated every ten minutes until the yellow-brown color of the broth had disappeared. The total content of the stomach was then aspirated every ten minutes for more than an hour. The total acidity, hydrochloric acid capacity, fasting contents and after-secretion were determined in every case. The experiments showed that 20 drops of the tincture of opium depressed the total acidity and free hydrochloric acid for a shorter, and 30 for a longer time. The after-secretion was decreased after more than 15 drops. The motility was not depressed after 40 drops. Opium suppositories (0.05 Gm.) decreased the acidity only to a small extent and in the beginning of the experiment. Injections of opium decreased the acidity considerably. The fasting content was still decreased the next day. The motility was apparently normal with the opium suppositories and considerably depressed by the mixture. The regurgitation of intestinal contents is diminished by opium in any form.

Effect on the Central Nervous System of Bromides and of Large Amounts of Salt.—Gärtner poisoned a number of mice, rats, guinea-pigs and rabbits with sodium bromide (subcutaneously and perorally). The brains were prepared in a sodium chloride-formaldehyde solution, with fixation according to the gold sublimate method of Ramon y Cajal. The slides showed a localization of the bromide on the protoplasmic glia. The mice yielded 80 per cent positive preparations and the guinea-pigs, 65 per cent. The sedative action of bromide is in a physical-chemical way explained as a dehydration of the membranes, which increases the permeability, and results in a decrease of the irritability. Introduction of large amounts of the bromide by the subcutaneous route showed great changes in all parts of the cerebrum in the Nissl's bodies. The blood vessels were filled, the endothelial cells showed vacuoles, and the nerve tissue great degeneration. Hypertonic salt solutions caused the same changes in the Nissl's bodies. These changes are typical for intake of large amounts of salt, and are due to dehydration. Brains of animals dying from thirst did not show glia pictures typical for bromide poisoning or Nissl's bodies typical for large amounts of salt. He concludes that in death from thirst there is not the same extreme dehydration of the brain.

Narcosis and Thydroid Treated Animals.—Herzfeld demonstrated the influence of thyroid extracts on the heart, observing the electrocardiograms and pulse frequence of fifteen narcotized guinea-pigs. Ten animals were thyroidized and five were used for controls. Chloroform or ether was used for the narcosis. The thyroidized guinea-pigs showed in contrast to the control animals a decided slowing of the pulse in chloroform narcosis, with disturbance in conduction in two cases. The slowing of the pulse depends on a vagus influence, which is latent in the thyroid internal secretion. The ether narcosis did not show any influence on the heart or in a chronotropic or dromotropic way on the conducting system. Chloroform general anesthesia thus has a more dangerous influence on the heart of thyroidized guinea-pigs than narcosis with ether.

Zeitschrift für Hygiene und Infektionskrankh., Berlin

106: 213-432 (June 24) 1926. Partial Index

*Vicarious Skin Test in Diagnosis of Smallpox. H. A. Gins.—p. 213.
Filtrable Typhus Virus. I. W. Hach.—p. 221.
Experimental Scarlet Fever. I. W. Hach and Bordzilowskaja.—p. 232.
Coarse and Fine Typhoid Flocculation. F. Kauffmann.—p. 241.
Parenteral Anthrax Infection. Y. Uchida.—p. 275.
Weakness of Extensor Muscles as Early Symptom of Lead Poisoning. L. Teleky and W. Schulz.—p. 394.

Vaccine Allergy of Guinea-Pigs in Diagnosis of Clinical Smallpox.—Gins demonstrates a new method, utilizing the vaccine allergy of immune guinea-pigs, instead of human bodies, in the Tièche procedure in diagnosis of smallpox. A skin reaction, showing redness and swelling of the inoculation areas, was obtained within twenty-four hours in positive cases. The method was checked clinically with good results. In applying the method, it is useful to have a number of immune guinea-pigs tested beforehand with vaccine of known different virulence. These can then be inoculated with the suspected pustule material.

Zeitschrift für physiologische Chemie, Berlin

156: 161-324 (July 30) 1926. Partial Index

*Quantitative Tryptophan Determination. E. Komm.—p. 202.
Iodine in the Thyroid. H. E. Meyer.—p. 231.
Quantitative Determination of Arginine and Histidine. A. Kossel and W. Staudt.—p. 270.

Quantitative Tryptophane Determination.—In four previous articles Komm reported his studies on the sensitiveness of the tryptophane-aldehyde reaction. In this fifth communication he presents a colorimetric quantitative method, and records the tryptophane content of certain proteins. Dimethylaminobenzaldehyde or formaldehyde dissolved in diluted hydrochloric acid reacts with tryptophane. A blue or reddish blue color is obtained, which is compared colorimetrically with a standard. Proteins containing tryptophane are dissolved or suspended in water and gelatin is added, which reenforces the reaction. Komm found in blood albumin 2.6, in blood fibrin 2.1, and in blood globulin 2.5 per cent tryptophane.

Zeitschrift für Tuberkulose, Leipzig

45: 273-352 (June) 1926

*Perifocal Inflammation. K. Lydtin.—p. 273.
Phenotype in Tuberculosis. F. Ickert.—p. 291.
Tuberculosis Hospital. O. Ziegler.—p. 307.
Recovery from Tuberculous Meningitis. E. A. Oppenheim.—p. 316.
The Reichsgesundheitsamt and Tuberculosis. B. Möllers.—p. 324.

Perifocal Inflammation.—Lydtin describes several cases of pulmonary tuberculosis in adults. The process caused a marked transitory condensation of the surrounding tissue.

Zeitschrift für Urologie, Leipzig

20: 481-560, 1926

*The Sedimentation Test in Urology. L. Litten and J. Szpiro.—p. 481.
Congenital Diverticulum of the Urethra. B. Kott.—p. 499.
The Bladder in Tabes. S. Perlmann.—p. 501.
Capacity of the Kidney Pelvis. W. Erdmann.—p. 505.
*Puncture of the Seminal Vesicles. J. Ingall.—p. 509.
Rare Tumors of the Testes. S. Rubaschow.—p. 514.

Sedimentation Test in Urology.—Litten and Szpiro analyze the fluctuations in the suspension stability of the blood in forty-one urologic cases, a total of 118 measurements. They confirm the value of the sedimentation test in differentiating between inflammatory and non-inflammatory affections, and between malignant and benign growths. Three readings are made twenty, fifteen and thirty minutes apart. The curve thus obtained shows a very slow sedimentation at the third reading in health, while this third reading shows an extra rapid hastening of sedimentation in the malignant and prognostically unfavorable cases. Repeating the sedimentation test (fasting) from time to time gives reliable oversight over the course of the case, they say, and an estimation of the prognosis not attainable by any other means.

Puncture in Empyema of the Seminal Vesicles.—Ingall comments on the danger of perforation when the outlet of the inflamed seminal vessels is obstructed. In one such case he punctured the right seminal vesicles (large as a hen's egg) through the perineum, with surprising benefit. The puncture was repeated five days later, and clinically normal conditions were soon restored. He worked out on the cadaver the most favorable technic for the puncture, guided by the finger in the rectum, and describes it with diagrams.

Zentralblatt für Chirurgie, Leipzig

53: 1681-1744 (July 3) 1926

"Intermediary Stage" in General Anesthesia. E. v. d. Porten.—p. 1682.
*Nondiabetic Postoperative Acidosis. M. Herz.—p. 1684.
Rare Congenital Malformations of the Nose. N. Feygin.—p. 1686.
Poisoning from Indelible Pencil Wound. R. Gartenmeister.—p. 1687.
*Vascularization of the Costal Cartilages. O. Nikolajew.—p. 1688.
Rupture of Intestine from Contusion. H. Degenhardt.—p. 1690.
Physical Examination Before Goiter Operation. H. Klose.—p. 1691.

53: 1745-1808 (July 10) 1926

Control of Hemorrhage in Wound of Apex of Heart. H. Klose.—p. 1746.
Atrophy of Kidney from Chronic Paranephritis. J. Bitschai.—p. 1748.
Habitual Dislocation of Lower Jaw. J. Loessl.—p. 1749.
Cysto-Endothelioma of a Tendon. W. E. Jolkwer.—p. 1751.
Appendicitis in a Hernial Sac. G. Rechess.—p. 1755.
Perforation of Meckel's Diverticulum. S. Lindqvist.—p. 1756.
Posterior Contusion of Patella. P. Haglund.—p. 1757.
"Anomaly of Testicle or Epididymis." G. Frattin.—p. 1760.

Nondiabetic Postoperative Acidosis.—The uncontrollable vomiting, which is the result of the anesthetic, and which makes the retention of fluid or food wholly impossible, is the cause, Herz suggests, of postoperative acidosis in muscularly weak or paralyzed children, from its using up the small carbohydrate reserve which such children possess. It should be combated by large doses of glucose before the operation and, if it appears, by insulin in addition to glucose.

Vascularization of the Costal Cartilages.—By injecting a concentrated solution of Berlin blue with 5 per cent glycerin through the aorta or internal mammary artery, Nikolajew examined the blood vessels of the costal cartilages in twenty-four cadavers from the fourth month of fetal life to the seventh decade. He found that the superficial vessels appear simultaneously with the cartilages, and that vessels are present in the cartilages at every age. The fact that, up to the fourth or fifth decade, the deep vessels do not anastomose throws light on the pathogenesis of chondritis.

53: 1809-1872 (July 17) 1926

Resin Solution in Surgery. J. v. Finck.—p. 1810.
*Anastomosis Between Vein and Abdominal Cavity. Kehrer.—p. 1815.
*Neutral Salts in Treatment of Infections. T. Remmets.—p. 1818.
Apparatus for Bloodletting in Large Quantities. W. Nissel.—p. 1824.
Simplified Apparatus for Blood Transfusion. J. Clemens.—p. 1825.
Advantages of Aluminum Foil as Ordinary Dressing Material. E. Makai.—p. 1829.
An Electric Chain Saw for Cutting Bone. A. Nussbaum.—p. 1832.
Vacuum Aspiration Treatment of Foreign Bodies and Fistulas. H. Eckstein.—p. 1834.

Anastomosis Between the Long Saphenous Vein and the Abdominal Cavity for Drainage of Ascites.—Kehrer describes his method for obtaining permanent drainage in ascites. Very careful technic, with gentle handling and perfect asepsis, are required. Four of his five operations were successful. In the fifth, slight local infection resulted in thrombosis. Ruotte in 1907 proposed this manner of dealing with ascites.

Neutral Salts in the Treatment of Infections and Malignant Tumors.—Remmets propounds the theory that every neutral salt has an affinity to a certain protein, which it is able to dissolve. Physiologic salt solution is able to replace blood for the reason that, like blood, it has the power to hold in solution the anabolic proteins. In experiments in vitro and on a rabbit, physiologic solution of potassium iodide, of a certain strength, inhibited the growth of streptococci. Above or below this strength, the solution lost its inhibiting power. The optimum strength may be altered for the same strain by passage through a fresh organism. He concludes that every neutral salt has a solvent affinity for a particular protein and that it follows that for every infection and also for malignant tumors a synthetic substance can be prepared with specific curative action. As an example of such a synthetic substance already in use, he names arsphenamine.

Zentralblatt für Gynäkologie, Leipzig

50: 1809-1872 (July 10) 1926

*Postpartum Hemorrhage. L. Prager.—p. 1809.
*Spirochetes in Umbilical Cord. E. Philipp and P. Gornick.—p. 1811.
*Lactic Acid in Placenta and in the Blood. A. Loeser.—p. 1819.
*Operations to Insure Patency of Tubes. F. Heimann.—p. 1828.
Outdoor Sports and Physical Training for Girls. W. Wiegels.—p. 1833.
Uterus Sound and Treatment of Sterility. W. Pfeilsticker.—p. 1847.
"Stimulation Irradiation of the Ovaries." Temesváry.—p. 1847.
Laminaria Tents. W. Braun.—p. 1849.
*Artificial Vagina. K. N. Rabinowitsch.—p. 1851.

Manual Removal of Adherent Clots and Scraps in Postpartum Hemorrhage.—Prager states that Brandt has been teaching this procedure for twenty years; Levret's advocacy of it 200 years and Saxtorph's 140 years before had been forgotten. It is indicated when the placenta has been expelled and the uterus has contracted well, but there is the so-called atony hemorrhage. Brandt ascribes the bleeding to tenaciously adherent clots or scraps, impossible to dislodge from without. He introduces the ungloved hand—without general anesthesia—and detaches the adherent clots one by one. As soon as this is done the uterus contracts vigorously and not only the hemorrhage is arrested but the conditions are rendered less favorable for bacteria. In the last 100 cases, there was absolutely no reaction in 78; slight fever for one day in seven; slight fever for days in six, never above 38.5 C.; two of the women had afebrile thrombosis in the thigh, seven had fetid lochia. Only in two was the temperature as high as 39.3 C. for one day. This procedure was applied in 2 per cent of the last 4,500 obstetric cases. Prager commends it as making the physician independent of the here futile ergot syringe, sparing him time, and saving the woman blood.

Spirochetes in the Umbilical Cord.—Philipp and Gornick scrape the wall of the vein in a 5 cm. segment from the peripheral end of the cord after it has been cut and opened lengthwise. A drop of the tissue juice thus obtained is examined with the dark-field technic, with other scrapings if the first is negative. In one instance he found five or six spirochetes in each specimen. This technic excludes other spirochetes, and clears up a dubious diagnosis at one stroke. The presence of spirochetes always coincided with the serologic tests in the mother with one exception, and in this case the reactions were decidedly positive a week later; the mother had probably contracted the severe infection just before the childbirth. In only five of fifteen cases with spirochetes in the cord, none could be detected in the placenta.

Lactic Acid in Placenta and Blood.—Loeser's research has confirmed that the lactic acid in the blood of pregnant women is always at the extreme upper limit of the normal, and in toxicoses—from the slightest to the gravest eclampsia—is much above normal. This suggests the advantage of insulin treatment in pregnancy toxicoses.

Operation to Insure Patency of Tubes.—Heimann slit the occluded fimbrial end of the tube, which seemed otherwise normal, and sutured the mucosa to the peritoneum, with the finest of silk thread. The outer row of sutures included the ovary. A normal pregnancy followed.

Artificial Vagina.—Rabinowitsch has applied the Baldwin method in six cases of atresia of the vagina, and tabulates 146 cases in which it has been applied by others (12.2 per cent mortality) and seventy-three cases of the Popow-Schubert method (mortality 9.6 per cent). His analysis shows that the dangers are about the same with each method, but the Baldwin vagina made from the large intestine covered with peritoneum is ample in size and correct in position, while the technic is comparatively simple.

50: 1873-1936 (July 17) 1926

The Elastic Tissue of the Vagina. M. Speiser.—p. 1874.
*Chloroform in Intra-Uterine Asphyxia. N. Louros and H. Müller.—p. 1897.
Blond's Thumb-Cap Decapitation Instrument. H. Baumm.—p. 1903.
Pregnancy After Tube Implantation. W. Pfeilsticker.—p. 1907.
*Premature Detachment of the Placenta. L. Prager.—p. 1908.
Cicatricial Occlusion of Cervix After Abortion. Müller.—p. 1919.
Idem After Curetting. J. Feuchtwanger.—p. 1920.
Case of Multiple Mammary Glands and Nipples. Abgabekoff.—p. 1921.

Chloroform in Treatment of Intra-Uterine Asphyxia.—Louros and Müller had thirty-nine cases in which the fetal heart sounds had dropped to 100 or below during at least two intervals between the labor pains, or had become otherwise modified. This was the indication to give the mother chloroform to enable the uterus to relax between pains and thus relieve the asphyxia of the fetus due to the permanent contraction of the uterus. From five to eight drops were given per minute, and in twenty-three cases this alone sufficed, and forceps was not required. In sixteen others further intervention was necessary; in two of these the cord was twisted tight around the neck.

Premature Detachment of the Placenta.—Prager analyzes fifty cases of retroplacental hematoma, with the placenta in the normal site. They were encountered in the course of 8,000 deliveries (Oslo). He concludes that the same cause which is responsible for toxic vomiting, albuminuria and eclampsia may entail a retroplacental hematoma. It is a pregnancy toxicosis.

Klinicheskaya Meditsina, Moscow

4: 165-200 (May) 1926. Partial Index

Immunity in Malaria. E. D. Belaeva.—p. 171.
*Specific Therapy of Malaria. A. G. Alekseeff.—p. 179.
Malaria in the New-Born and Infants. I. V. Fridman.—p. 181.

The Specific Therapy of Malaria.—Alekseeff affirms that it is the erythrocytes almost exclusively that are the vehicle of quinine in the blood, since the drug is readily absorbed by their lipoids. Thus its action is most pronounced when the plasmodia are enclosed in the erythrocytes. This statement disagrees with the old theory that quinine should be given five or six hours before a paroxysm in order to affect the released parasites. Small doses of quinine (under 0.3 or 0.5 Gm.) exert a tonic but not a specific action. The drug is effectual only in large doses, and when given by the mouth. Ingested quinine is eliminated in from twenty-five to twenty-eight hours, that injected intramuscularly in from twelve to sixteen hours, and that introduced by the vein in from eight or ten hours. He gives 0.5 or 1 Gm. of quinine twice a day, one dose after a cup of tea, in the morning, the other five or six hours later. The quinine is given at five day intervals, for three months, sometimes even longer. The treatment is repeated in the spring of the following two years if clinical recovery is not complete. Two injections of neo-arsphenamine are added in the course of the treatment, if there are signs of developing resistance to the drug. Methylene blue and neo-arsphenamine may enhance the defense of the organism; they do not influence the plasmodia.

Vestnik Rentgenologii i Radiologii, Leningrad

4: 3-122, 1926, Partial Index

*Roentgen-Ray Cancer in Man. M. I. Nemenoff.—p. 3.
Influence of Roentgen Rays on Bacteria. A. Y. Zholkevich.—p. 7.
*Roentgenotherapy of Asthma. M. M. Bolshakova.—p. 23.
*Diathermy of the Spleen in Asthma. R. Y. Gasul.—p. 31.
Radium in Cancer of the Esophagus. F. S. Grosman.—p. 39.
Roentgen-Ray Exploration of Bronchiectasis. S. A. Reinberg.—p. 47.

Case of Double Roentgen-Ray Cancer in Man.—Nemenoff reports a case of cancer which developed on both wrists after roentgen-ray treatment for eczema. The roentgen rays had been applied regularly for four years, 1 H. unit being given for five minutes once a week. The next two years occasional exposures were given. The malignant tumors developed four years later. Nemenoff considers this case as analogous to an experimental cancer in man. His colored plate shows the double cancer; the right hand was most extensively involved.

Roentgen-Ray Treatment of Bronchial Asthma.—Bolshakova applied the treatment in eighteen persons, aged from 14 to 52, with bronchial asthma of from one to seventeen (in one case even thirty-seven) years' standing. Lesions of the respiratory tract were present in all. Exposures of the front and the back of the chest, from three to five days apart, were made the first week. The series was repeated after three weeks. About one fifth of an erythema dose was given on each exposure; the total number of exposures was not over eleven. The patients remained under observation up to two years. The attacks of asthma and all morbid phenomena disappeared totally in four, two patients were improved. In six cases the treatment was without avail; three cases are recent. The favorable action of the rays is probably due to destruction and resorption of the inflammatory products in the bronchi.

Application of Diathermy to the Spleen in Bronchial Asthma.—Gasul used this treatment first two years ago in a

case of severe asthma rebellious to drugs and rays. After fifteen exposures the attacks vanished, the patient gained weight, and was able to resume her work. He has since treated twelve other asthmatic patients by this method. The electrodes were applied to the front and back of the spleen. From 0.8 to 2 amperes were used in each of from ten to thirty sittings, given two or three times a week. The attacks did not reappear in nine patients, under observation from five months to a year; in the remaining the condition was greatly improved.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 501-636 (July 31) 1926

Removal of the Uterus at Cesarean Section. G. C. Nijhoff.—p. 502.
Immunization Against Diphtheria. L. S. L. Meijer.—p. 508.
*Blood Sugar Testing. B. Sybrandy.—p. 521.
*Spirochetal Hemorrhagic Jaundice. A. H. van Gelder.—p. 524.
Experimental Research on Fate of Bone Transplants. R. Finaly.—p. 533.
Microglia and its Significance. H. Polderman.—p. 537.
The Conference of Eugenic Organizations. Paris, 1926. M. A. van Herwerden.—p. 572.
*International Genetic Records. M. A. van Herwerden and H. H. Laughlin.—p. 575.
Social Insurance from Standpoint of Preventive Medicine. L. Heijermans.—p. 577.

Test for Glycemia in General Practice.—Sybrandy states that previous treatment of the strip of filter paper with potassium chloride will prevent the spontaneous reduction of the glucose content of the blood taken up by the filter paper, which is otherwise inevitable. The strips can then be placed in an envelop and sent to a laboratory. The paper keeps this antiglycolysis property for months. The blood on this prepared paper keeps its sugar content unmodified for twenty-four hours or more, and the KCl does not interfere with the Bang test.

Spirochetal Hemorrhagic Jaundice in the Netherlands.—Van Gelder sought for other cases in the environment when confronted with a severe case of Weil's disease, and found *Spirochaeta icterohemorrhagiae* in a total of eleven cases. The first four were severe, three patients dying. None presented enlargement of the spleen, and the later cases were recognized only by their epidemiologic connection with the early severe ones. Six of the patients were known to have been swimming at Delft in water swarming with rats. The rats examined showed *Spirochaeta icterohemorrhagiae* in all, or guinea-pigs inoculated with material from them developed typical Weil's disease.

International Graphic Records for Research on Genetics.—The committee in charge of this subject since the conferences of the International Federation of Eugenic Organizations in Milan and London, 1924 and 1925, advocate the adoption of the symbols used by the American Breeders' Association. Among the slight modifications suggested at the 1926 conference is to count backward from the individual under examination, numbering the preceding generations as II *a*, III *a* and the succeeding generations as II *d*, III *d*, etc. The chart is reproduced.

Acta Obstet. et Gyn. Scandinavica, Helsingfors

5: 1-101, 1926

Congenital Hydrometra and Hydrocolpos. O. Nordenfelt.—p. 1.
*Genital Tuberculosis in the Female. J. Olow.—p. 24.
Delivery with Breech Presentation. H. Friis-Rasmussen.—p. 41.
Postoperative Retention of Urine. S. Hjelt.—p. 89.

Tuberculosis in Female Genital Organs.—Olow's article is based on twenty-five cases. The symptoms may be very severe or they may be even subjectively negligible. But in any event, a radical operation is the only guarantee of a permanent recovery. A fatal issue must be reckoned with otherwise. He denounces curetting even for diagnosis, and regards as significant a case in which tuberculous processes in both tubes were accompanied by a carcinoma in one of them.

Acta Radiologica, Stockholm

5: 223-293, 1926. Partial Index

Atypical Achondroplasia. N. Silfverskiöld.—p. 223.
*The Stomach After Gastro-Enterostomy. L. Arisz.—p. 236.
Pulmonary Atelectasis. S. Junghagen.—p. 250.

The Stomach After Gastro-Enterostomy.—Arisz gives an analysis of conditions found in stomachs after gastro-enterostomy. The operation diminishes the mobility, but does not change the possibility of peristaltic movements and the pyloric mechanism. He found that the ulcers even after the gastro-enterostomy continued to exert their influence tending to produce spastic deformity of the stomach wall and interfere with the peristaltic movements.

Finska Läkaresällskapets Handlingar, Helsingfors

68: 509-606 (June) 1926

*Tuberculosis of the Urinary Apparatus. B. Runeberg.—p. 509.
*Variations in Sugar Content of the Blood. O. Holsti.—p. 549.
*Verrucous Arteritis. O. Holsti.—p. 575.
Present Status of Calmette's Vaccination Against Tuberculosis. E. Qvarnström.—p. 579.

Tuberculosis of Urinary Apparatus.—Runeberg analyzes 126 cases with nephrectomy and eighty-seven without, 1900-1922. In 55 per cent there had been symptoms from the urinary apparatus for more than a year before the tuberculous nature was suspected. The onset was insidious in 70 per cent; the first symptom was disturbance in micturition in 74 per cent; pain in the lumbar region in 16.3 per cent, and hematuria in 5.8 per cent; in two cases pyuria, and in three emaciation. The bladder was found normal in 33 per cent of those presenting "cystitis" symptoms as the first manifestation. Local measures against this "cystitis" are distinctly dangerous, besides being useless. The urine reaction was acid in 96 per cent of the cases of renal tuberculosis; albuminuria and pyuria were practically constant. The irregular outlines of the pus cells, in contrast to pus from other infections, aided in the diagnosis (Colombini). In fifteen cases no bacteria could be found in the acid, pus-containing urine. He denies that this is pathognomonic for renal tuberculosis. On the other hand, tubercle bacilli can be eliminated through the sound kidney. He reports a case that confirms this, both kidneys eliminating tubercle bacilli, but since removal of one kidney, the other has been functioning apparently perfectly. Fully 80 per cent of the nephrectomized were restored to health. One patient refused to allow removal of the kidney and she has spontaneously recovered—an instance of auto-nephrectomy. The disease has progressed in all the other cases without surgical intervention. In conclusion he warns to continue general treatment after the nephrectomy, as these patients are still tuberculous after removal of the renal focus.

Variations in Glycemia.—Holsti tabulates the fluctuations in the blood sugar curve with the alimentary test in thirty-nine patients with various maladies, and in seven others under thyroid treatment. There seems to be a stimulation of the glucose-mobilizing glands at the height of the disease. During convalescence their activity is depressed below normal. Thyroid treatment raised the glycemia curve.

Verrucous Arteritis.—Holsti gives further illustrations of the warty changes he has found in certain small arteries. They are most frequent in heart, kidney and joint diseases.

Hygiea, Stockholm

88: 513-544 (July 15) 1926

*Injection Treatment of Trigeminal Neuralgia. G. Bauer.—p. 513.

Injection Treatment of Trigeminal Neuralgia.—Bauer applied injection treatment in twenty-four cases between 1915 and 1924. Fifty-two injections were made in all. The eyes are examined before injecting the alcohol, treating dacryocystitis, and an aluminum shield is worn for a few days. The neuralgia was of two months' to twelve years' standing in the eight men and sixteen women; the average age was 56. No improvement was observed in one post-zoster case, and another patient refused the second injection and committed suicide five years later. Of the total twenty-four patients, thirteen are permanently cured, and all except six have been cured or much improved. The Härtel technic was followed except that after the needle had reached the ganglion it was drawn back a trifle.